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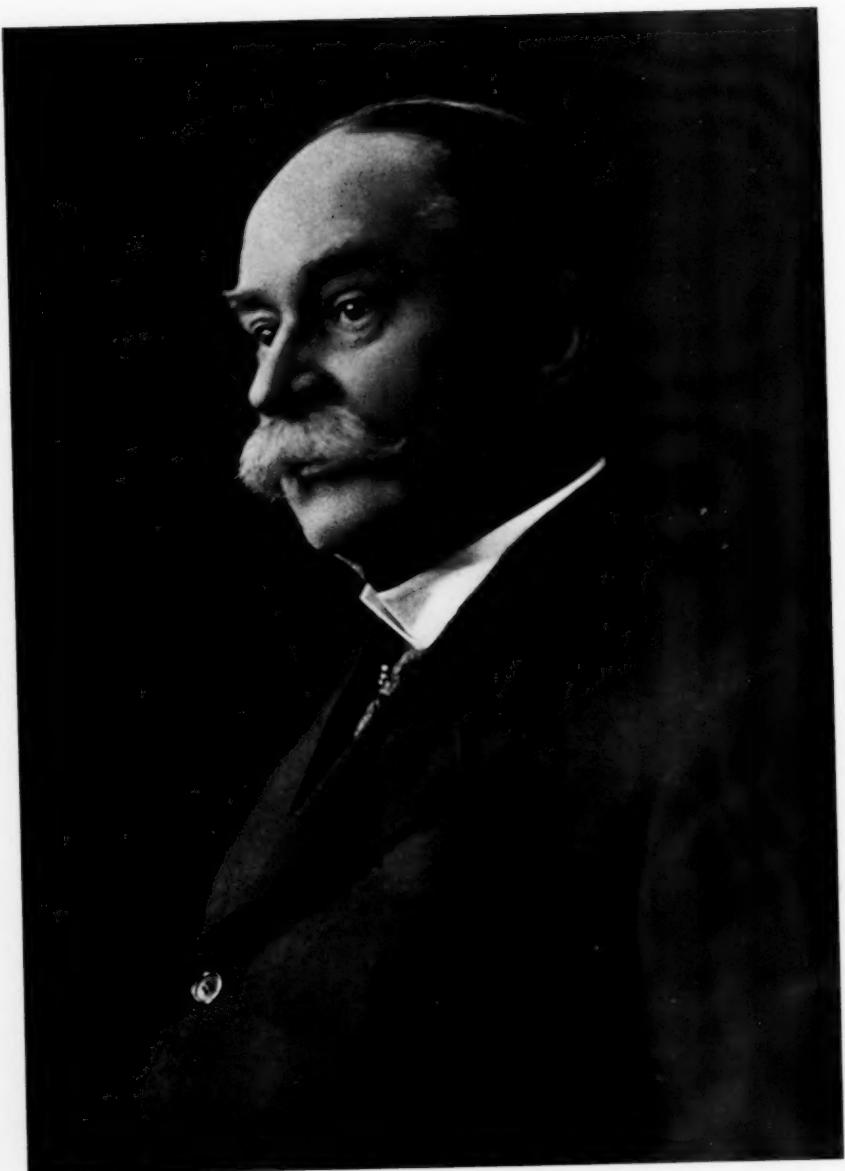
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G.K. Chesterton

AMERICAN JOURNAL OF PSYCHIATRY

AN ANALYSIS OF RECOVERABLE "DEMENTIA
PRECOX" REACTIONS.*

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INTRODUCTION.

The object of this study was to uncover, if possible, the pre-psychotic or psychotic factors which might have acted as symptomatic determinants and imparted a malignant aspect to mental reactions which by virtue of subsequent recovery must be classed as benign. Although the cases which are presented were diagnosed dementia precox, we were only secondarily interested in the accuracy of this classification. Diagnostic criteria, particularly in respect to schizophrenia, are far from being clear and static and, since a favorable or unfavorable outcome does not absolutely prove or negative the original opinion in any given instance of mental disease, there necessarily remains the possibility of an unavoidable and considerable margin of unresolved error. We were concerned principally with the indications for prognosis which were available. They frequently arose previous to and apart from the actual symptomatology, though not infrequently they apparently influenced its characteristics. Furthermore, we largely restricted ourselves to a consideration of manifest and readily understandable material. Interpretations which involved a probing of the unconscious were

* Read at the seventy-ninth annual meeting of The American Psychiatric Association, Detroit, Mich., June 19, 20, 21, 22, 1923.

avoided. Psychoanalysis of patients with psychoses is said to bring to light deeply buried and even archaic behaviour patterns which are thought to have an universal and phylogenetic rather than a particular application. We undertook merely to analyze the conscious historical and personal data which might serve to bring out individual distinctions.

SELECTION OF CASES AND SCOPE OF INVESTIGATION.

The cases which are reported were selected from 1000 consecutive admissions during an eight-year period. One hundred and eighty-seven (18.7 per cent) were classified as dementia precox and of this group, 25 patients (13.3 per cent) recovered. This diagnosis was determined by the majority vote at staff conferences and the selection of cases was made on the basis of the completeness and permanence of the restitution to normality. A number of instances in which there was a clear cut previous attack and several in which the end result was questionable and probably did not go beyond a partial social re-adjustment were excluded. The most recent recovery occurred seven months ago and the two longest have endured eight years. The average is slightly over 5 years.

The scope of the investigation included certain statistical information such as age, civil condition and nativity. Racial differences favoring the development of unusual psychotic trends were kept in mind. Family history was searched not only for the existence of abnormal familial types but also for the presence of influential character traits which might have been inherited by the patient and later have become dynamic enough to modify and distort the clinical expression of the psychosis. The personality was carefully reviewed on account of its intrinsic importance from the standpoint of prognosis. Certain idiosyncrasies of make-up, as for instance seclusiveness or even suspiciousness, are ordinarily regarded as suitable culture media for the growth of malignant mental illness and in this connection an effort was made to discover whether such dispositional liabilities were actually inherent in the individual or whether they were artificially introduced and fostered by environmental circumstances. Furthermore, it is conceivable that the personality might be dominant

enough to mould the symptomatology into peculiar forms, so that common diagnostic marks become of little avail and prognostic judgment is apt to go astray. The physical pre-psychotic status was considered and appraised. The precipitating situation was retrospectively measured, its somatic and psychogenic elements, its acuteness or chronicity and the possibility of its correction were weighed. One of the queries proposed was: To what extent do the mental symptoms reflect the motivating extraneous happenings which antedated them and may their unfavorable type be explainable as a disguised but nevertheless more or less logical response to the precipitating conditions? The onset was reviewed in regard to its abruptness, physical accompaniments and the setting in which it occurred. At this time, when resistance was at its lowest ebb and inhibitions were presumably much diminished, was there the intrusion of incidental factors which later imparted a false appearance of chronicity to the psychotic content? Finally, all the somatic and psychic phenomena of the mental disease itself were taken into consideration. There is, we believe, a tendency to underrate the former and yet even mild toxic states may produce manifestations which complicate the clinical picture. There are many obstacles which stand in the way of a true evaluation of the various elements which make up the mental status. Two symptoms, in particular, stupor and disturbance of affect are extremely difficult to judge correctly. The boundary line between benign and malignant stupor is not at all sharply defined and there still remains much unexplored territory. Again, our methods of testing emotional resiliency and depth are markedly restricted. Slight disturbance of consciousness, racial or even individual habitual inadequacy or peculiarity of the expression of feeling may prevent moving affective trends from reaching the surface in a form which is likely to be rightly interpreted by the observer. Nevertheless, on the accuracy of the estimate of affect frequently depends a valid prognosis.

PRESENTATION OF CASES.

The case notes have been somewhat abbreviated and only positive findings included but every patient has had the routine physical and mental examination and the clinical observation afforded by a modern mental hospital.

CASE 1.—Yetta B., a Jewess, 25 years old, unmarried and born in Russia. She was one of a family of 12 children and emigrated in 1913, at the age of 22. In 1916, when the mental disease began, the father, three brothers and two sisters were still in Russia. The family history is negative both in the ancestry and the collateral branches. Severe smallpox at the age of five left the patient badly pock-marked but otherwise her health has not been impaired. Her education was limited to 7 years in the common schools of Russia. She became a glove maker and was rated an efficient worker.

Quick, ambitious and sociable; apparently the only personality drawback was a not unnatural sensitiveness referable to the scarred and pitted appearance of her skin. Often the patient remarked "I'll never get a fellow with a face like this."

The precipitating situation was primarily psychogenic. The World War was on and the progress of the German advance on the Eastern front placed her father, brothers and sisters within the zone of German occupation. Of course, all communication with the United States was cut off and the patient worried unceasingly and often expressed the fear that the family were dead or lost. At this time she was working ten hours daily and not sleeping very well.

Outspoken symptoms appeared suddenly. The patient became seclusive; spoke in a rambling way of "fresh air" and insisted on sitting in a cold room, insufficiently clad with all the windows open to their widest extent. Once she entered a drug store and could not be restrained from exposing herself in order to convince the disinterested druggist that she had been vaccinated. Finally, while wandering aimlessly about the streets of New York, she was picked up by the police and taken to Bellevue Hospital.

The psychosis had a duration of six months. The behavior bore the imprint of an unmotivated catatonic reaction. There were spontaneous screaming spells and scolding, seclusiveness, stubborn resistiveness, food refusal, the retention of stiff, awkward postures, catalepsy, cerea and untidiness. Occasionally there was the interposition of brief stupors during which there was no response to pin pricks. The delusional trend was not prominent and was vaguely paranoid with references to hypnotism and poison in the food. Hallucinations were not sharply defined but involved at least two fields. There was the odor of "dead people," everything "smelled of niggers" and "sounds" came from the walls. At first, there was a mild, apprehensive affect without definite objective but it seemed to dwindle rapidly and in the notes there is frequent reference to "indifference" and "apathy." The expression of emotional life was limited to smiling, rarely sighing; crying which shifted abruptly to silly laughter.

The principal physical accompaniments were a visible and palpable thyroid, extremely large tonsils and a weight decline from 114 to 92 lbs. of which 18 lbs. were subsequently regained.

After about five and one-half months, improvement and insight developed in a few weeks and soon there was a complete recovery which has been maintained for 7 years. Three years ago the patient married.

DISCUSSION.

At the staff conference held at the end of the fourth month of the psychosis, dementia precox was the only diagnosis considered. Even at this late date and in the face of the favorable outcome it would be difficult to substantiate another opinion. As far as could be determined there was marked incongruity between the symptomatology in general and the manifestations of affect which came to the surface. On such a basis alone schizophrenia becomes the strongest probability, even if the hallucinosis, scattered paranoid tendencies and more or less undisturbed consciousness are left out of consideration. The partial stuporous states were far from being unquestionably benign. They occurred practically without premonition, to the extent to which clinical comparison could be made they were not sharply demarcated in their affective and ideational properties from the remainder of the psychosis, lacked either obvious or masked portrayal of the death idea and the patient seemingly could not recollect their incidental features.

The result of a reversal of the unfavorable prognostic expectation in this case, naturally brings up the question of the great difficulty of even roughly evaluating an emotion. After all, in a given case, we are dependent on the ideational content which is often only very partially accessible and on an observation of the accompanying physical expression movements. How uncertain, this, the only available method is even in normal individuals, may be gathered from a statement by Wundt "The principle that observation is wholly inadequate when applied to psychical processes which present themselves in the natural course of life, holds especially for the emotions."¹ Furthermore, the appraisal of the kind of affective trend is apt to be the more accurate, the greater our familiarity with the subject. Thus, in our family and intimate friends we readily learn to discover the presence of certain feeling tones on slight observational evidence, which criteria if applied to strangers would be valueless and misleading. Again, certain races and nationalities whose habits of life and characteristics are more or less akin to our own are emotionally much more understandable than those who are very remote and alien in manner and custom. The emigrant Jew, both by virtue of unusual racial and historical and personal environmental factors would seem to belong to this latter group. Myerson² in his splendid essay discusses some

of these points. It has been our personal experience which we have heard confirmed by a number of psychiatrists, that a higher percentage of malignant-like psychoses seem to recover in the Jew than in other racial or national classes. Such a consideration may have been involved in this instance. Furthermore, a careful perusal of the records brings to light the fact that the stage of greatest "apathy" was also the period of a loss of body weight from 114 to 92 lbs. This, in itself, makes it somewhat doubtful whether we were dealing with a true and basic affective diminution.

It is possible, also, that the particular affective quality of the precipitating circumstances was undervalued. It will be recalled that there was a long period of worry and apprehension. Our knowledge of the effect of these long drawn out emotional states on the type of somatic concomitants is too slim to permit of deductions but we know in a general way that the continuance of even a mild unpleasurable affect may result in an asthenic reaction.

CASE 2.—Minnie G., age 30, unmarried and born in Pennsylvania of Pennsylvania German stock. She is one of a family of eight—five brothers and three sisters. The father is peculiar and eccentric and a maternal uncle has been insane for 30 years.

At 17 the patient completed her schooling and thereafter lived on a farm and assisted her mother with the housework. The farm was remote from even a small city, life was rigid and monotonous, the father denied the family actual necessities and there was a spirit of that type of stern, unbending religion which reveres ugliness as a virtue. For diversion the patient read religious books and occasionally played the piano. Reared in such an atmosphere it is not unnatural that she should be timid and shy and liable to "blue spells." As a matter of fact, the defect in socialization reached a high degree, so that at 20 she was typically "shut in" and remained *seclusive* for eight years. With the exception of menstrual irregularity her physical health was good.

Both in and between the lines of history, there is evidence of a mental conflict (between the acceptance or rejection of the faith of her family) definite enough to be considered seriously in attempting to trace the genesis of the psychosis. Finally, the pressure of her surroundings became too strong and she was "converted." That there were tenacious reservations concerning the dogma of her father is obvious from her rebellion against its outstanding symbol—a drab and shapeless garb—which she discarded after wearing it six months.

Although she continued to do the housework it is exceedingly likely that the patient was psychotic for at least two years before an exacerbation of symptoms made admission to a mental hospital imperative. During this period she was regarded as "depressed," sometimes agitated and would

walk up and down "wringing her hands" and now and then spoke of suicide. There were many vague references and hints about the injustice of the family (at first scarcely to be dignified into delusions) and ideas of reference (she was being "looked-down" upon because she did not clothe herself in the religious habit). One day a voice came into the room and said, "Thou shalt not kill."

The psychosis continued for at least another year, thus completing a three-year course. We observed a four months cross-section. Its most notable phenomena were seclusiveness and evasiveness. The former was of the type so characteristic of certain schizophrenics who consistently avoid every attempt to intrude upon their worlds of unreality. The evasiveness came into play particularly at any effort to bring her state of mind about her family to the surface. Beyond such remarks as "they had every opportunity in the world to get me the things I wanted"—"It's all my family's fault that I'm in this condition"—nothing could be obtained though it seemed probable, in view of the patient's attitude when closely questioned, that there was more than ordinary resentment and very possibly delusional formation. The patient was chary of speech and there was assumed to be poverty of thought. However, she was not noticeably retarded. Motor inactivity prevailed. Affectively she occasionally complained of being depressed but suitable expression concomitants for the greater part were lacking. When she smiled it was usually without reference to the accompanying external situation. She was frequently designated apathetic. Memory and orientation were preserved and the sensorium was intact.

Physical examination was not productive of any conclusive findings. There was acne, slight thyroid fullness, a large fibroma of the breast, cold and clammy hands and feet and tremors.

Recovery took place in 1916. A report three years later speaks of the patient as "well." It was evident also that she had broken away from the narrow confines of her former life and that there were promising efforts in the direction of socialization. She had taken a correspondence course in nursing and utilized her "training" in the rural community. There had been frequent trips to the nearest city and longer visits to Atlantic City, Philadelphia, and Niagara Falls. Obviously, the paternal discipline had become somewhat relaxed, so that not only the condition of the patient but that of her father and the entire family may be said to have been benefited by the mental disease.

DISCUSSION.

The psychosis taken at its face value was dementia precox and was so diagnosed. The withdrawal from all environmental contact, with reticence and seemingly affective diminution and dis-harmony comprised the background of the symptomatic details. A depression might have been considered but it would have necessitated the filling in of many gaps since neither retardation

nor clouding of the consciousness could be sufficiently established to account for the paucity of objective emotional signs.

A scrutiny of the individual life history provides the opportunity for a less serious interpretation of a portion of the psychotic content and perhaps reveals it in a somewhat brighter prognostic light. The pre-psychotic seclusiveness may be regarded as a logical reaction—the only available protection against and compensation for an unnatural environment. In one sense, the patient's withdrawal from the situation in which she found herself (at an age when there must have been both physiological and psychological stirrings which could not find satisfaction or adjustment in the surroundings) was an effort, not so much to seek refuge in unreality as it was an attempt to hold on to the worth while things of reality. How highly important she considered her "escape" was revealed even during the psychosis when she said to one of the hospital physicians, "I'll stay here six months, if you will leave me stay" or when on the day of her transfer to a county asylum she wrote "I told them they were to take me away from home. It had to be a change of *scene*" . . . "I kept myself cheerful and quiet, there was no patient could ever discourage me. I always looked on the bright side of life and I was contented. I sent home for my paints. It was my constant wish that I might learn to paint. It was an inspiration. I loved art and I was always contented and happy when trying to learn. I saw beauty in everything here. The lovely *grounds*, the beautiful *flowers*, the *gardens*, and the different *trees* were a *study* to me. It was everything so different."

It has been mentioned that seclusiveness and evasiveness were outstanding in the psychosis and that there was a lack of objective signs of emotional life and the appearance of apathy. However, once the patient said "I can't hardly bear it sometimes—I am depressed" but with further questioning she smiled. It must be remembered that we were dealing with an individual who could not be measured clinically as most patients within certain limits may be measured. She had schooled herself for years to be outwardly stoical and had probably become adept in presenting an indifferent demeanor to the small world in which she lived, no matter how deeply she may have felt beneath the surface. So, also, might the withdrawal from contact and the reticence during the hospital

residence be thought of simply as the result of habitual behaviour which finally had become productive of real inability to meet the demands of any kind of society. There is some reason in this instance for giving it such a valuation instead of assuming the more complicated mechanism which underlies schizophrenic isolation.

CASE 3.—Lucy Y., unmarried, 26 years old, a native of Pennsylvania, German parentage. As far as can be determined the family history is clear of potential sources of danger. However, it is recorded that the patient was an only child born six years after her mother's marriage to a man of seventy-six.

She was affectionate and social but always "seemed older in her ways than other girls." Fond of music and reading. Unfortunately, there was other less desirable and probably more determining traits. For instance, there was a so-called "nervous" temperament with inability to stand pain. Finally, the patient was decidedly quick tempered and stubborn and "*even as a child would stiffen herself, open her mouth and roll her eyes about if opposed in any way.*"

When quite young she fell and struck the base of her spine. Often she complained of pain in this location. At 12 there was severe pneumonia and thereafter she was "frail." In 1912 it was necessary to do an appendectomy, right oophorectomy and fixation of the uterus.

The conditions which may have been in some degree instrumental in the precipitation of the psychosis were as follows: Pneumonia eight months before the development of mental symptoms. The acute illness lasted five weeks but the patient resumed teaching before convalescence had been safely completed. Three months later there was difficulty with the School Board which culminated in her resignation and this was succeeded by a period of vague "stomach trouble" accompanied by "hives and shingles." There is an indefinite note to the effect that at this time the patient was engaged to be married. These factors stand out from a background of strain, overwork and fatigue.

The symptoms began suddenly and at once struck the symptomatic keynote of the psychosis. The greatest disturbance was in the general field of behaviour: resistiveness, violence and clownishness. She refused food and threw the medicine at the nurse. Often "she stiffened herself" and became mute. The patient would put her clothing on backwards; walk on hands and knees or lie rigidly on the floor. "People" were making fun of her and "voices" teased or chided. References to an unpardonable sin, suicide and a request for poison were apparently unsupported, at least objectively by any evidence of deep affective stirring. Several times she talked incessantly for an hour or two. Undoubtedly the sensorium was clouded.

The duration was three months. At the height of the psychosis these reactions were intensified. The more or less violent opposition to the

environment remained and spontaneous screaming, aimless restlessness and untidiness were added. A semi-stupor, with catalepsy and affectlessness (?) was a prominent feature. At this stage there was no reaction to needle pricks. Episodes of laughing, singing and dancing occurred. There was also auditory hallucinosis, occasional rhyming, apparent disassociation and an impression of slowness and fatigue which, when it was separated from the clown-like behaviour in the later course of the psychosis was equivalent to true retardation. Disorientations and considerable confusion existed. Judged by its expression the emotional life was not in keeping. There was silly smiling, brief crying spells, and vague self-depreciation and now and again uncertain depression and clumsy suicidal attempts.

The patient looked moderately toxic. There was only slight fever, rapid pulse, urine contained albumin and had a high specific gravity. The skin was oily and there was acne. The thyroid was a trifle enlarged. The weight was about ten pounds low.

The period from the initial signs of improvement to complete recovery covered two weeks. The patient has remained well for seven years.

DISCUSSION.

From a diagnostic point of view dementia precox seemed to deserve primary consideration largely on the basis of affective disassociation.

It is not to be denied that there was a certain amount of isolated evidence in favor of manic-depressive, but it was not emotionally sustained and was never convincing. Further, measured by Hoch's⁸ studies the stupor could scarcely be classed as benign. Although there was catalepsy and both the intellectual function and the affect were diminished and at times practically suspended, yet the latter was also inappropriate as evidenced by interruptions of silly smiling, divergent thought and bizarre unrelated action. The toxic factor should not be disregarded. Before the stupor came into being and after it had lifted, confusion was obvious. The somatic signs of intoxication were not emphatic, but neither were they entirely lacking and it is somewhat difficult to agree entirely with Hoch's sharp differentiation between organic and functional stupors. It is not unreasonable to assume that there is a border line group.

If previously existing characteristics may be carried into the psychosis and in some measure determine its expression then we may perhaps find in this patient's make-up at least a partial explanation of the psychotic negativism and the catatonic outbreaks against an environment, which, of necessity, during her illness

sought to control her. It will be recalled that she was quick tempered and stubborn and even in childhood developed a physical behaviour reaction pattern (which was repeated in the psychosis) to indicate her intense dislike of opposition. In one sense the psychosis may be interpreted as alternating active and passive phases of rebellion against authority. It may be mentioned in this connection that one aspect of the precipitating situation involved a clash of wills—the patient's and the School Directors' in which the former was defeated, presumably the first serious encounter in which she came off second best. It is also possible that in addition to the personal stubbornness a racial determination should be considered. Finally, there was in the immediate pre-psychotic chain of incidents (fatigue, depletion from pneumonia, "stomach trouble," hives, shingles) a strong suggestion of an intoxication or exhaustion process. Perhaps this was productive of symptomatic elements (confusion, torpor, hallucinosis (?)) which masked affective display and still further emphasized the schizophrenic features of the clinical picture.

CASE 4.—Ellen R., age 35, single and born in Pennsylvania of American parents.

The patient was the second of three children and following the birth of the youngest the mother developed acute mania (?) which merged into a chronic psychotic state, marked by paranoid ideas chiefly centered in her husband and persisting until her death at 54 of diabetes. Five maternal aunts and an uncle were alike artistic and "high strung." The father had tic.

All in all the patient's personality was a helpful one. She was vivacious, eager and friendly, energetic and thorough, optimistic and philosophical. Her principal handicaps were self-consciousness and a tendency to introspection. Education was obtained in both public and private schools, amounting to the equivalent of a college preparatory course. The study of music began at six and was probably a constant source of pleasure and relaxation. She taught kindergarten, was very successful in her chosen work and "handled children well." At the age of nine she had an injury (the details of which are lacking) and was "upset and nervous" for a long time after but regained and maintained normal health.

The immediate precipitating circumstances have to do with overwork, gradually waning health and strength and loss of weight. The recital of these bare facts constitute merely a statement of the culmination of a long history of deterrent influences which reach back into early childhood. Though remote they are not only well authenticated by the historical account but their motivating power is clearly emphasized by the content of the psychosis. From her babyhood until the beginning thirties the environment in which the patient lived was excellent culture material for

the growth of mental abnormality. The mother was insane and the victim of many delusions and there was constant friction in the household. She did not escape from these depressing surroundings until three years before the psychosis appeared and it is clear that the single year in New York where she taught kindergarten was perhaps the most satisfactory of her existence. "She was happy and contented and had many friends and recreations." However, the mother died and though a conflict between desire and sense of duty must have arisen, the patient, nevertheless, promptly returned to her home where for three years she was "dissatisfied, unhappy and overworked." This was the opinion of her brother who saw beneath the surface but at the same time he states, that although "she disliked housework, yet she did it cheerfully, repressing her feelings." During the psychosis when inhibitions were lowered the patient said, "Father and brother expect me to get strong and wait on them for the next 35 years."

The objective phenomena of the psychosis appeared abruptly. She became worried, talkative and erratic and visited the neighbors with a bottle of medicine which the physician had ordered, asking their advice as to whether it would be safe to take it. She was flighty and had difficulty in completing sentences. "A few days later she had a sudden excitement—was noisy and fearful—had visual hallucinations—saw imaginary faces at the windows. Now has ideas of persecution. Accuses her father of hypnotizing her. Mistakes the identity of persons. Is often disoriented for time and place. Has crying spells."

The psychosis which had a 14 months' course recalls her mother's mental disease by its division into acute and chronic phases. For several weeks there were acute manifestations—objectless over-activity, shrieking, grunting, hawking and expectorating to rid herself of the "black stuff" in her teeth, visual hallucinosis, a paranoid delusional trend—her father had "wished something on her," she had been made "crazy," there were "no friends," "only fiends," etc. There were episodes of posturing with closed eyes and mutism. These symptoms stood out from a background in which there was no discernible trace of affective accompaniment and a diagnosis of catatonic dementia precox was made.

Although the emotional component remained more or less formless the delusional direction of the psychosis came more clearly into view. Her mind was being "read" by doctors and nurses, she was in the hospital for "research," felt "harnessed like a horse"—someone was "using" her mentality, she referred to the "code of ethics of those who have me in charge" and "a consultation of the people in charge of me," thoughts were thrust upon her mind and she was pulled like a rubber exerciser, she was in the hospital for a purpose, there were wires under the floor, while she was talking her mind was doing something else and she "could not control" her muscles and gestures. Auditory hallucinations both broke in on and repeated her thoughts. She frequently asserted that she was married and once declared that she was pregnant and hoped the child would be a boy. Memory was good, orientation not more than partially lost, if at all, and the

sensorium not obviously disordered. However, something had "dropped" in her head and it felt "muddled." While the signs of affective currents in the main were wanting, occasionally there was flippancy, weeping, once she buried her face in the bed clothes until cyanotic (presumably, from the setting, a suicidal attempt) and finally as the mental symptoms began to give way, a suggestion of exhilaration.

Physically the thyroid was slightly enlarged, repeatedly there were traces of albumin and many bacteria in the urine, a leukocytosis of 9800 (73 per cent neutrophilic), a single apical tooth abscess, a fever under 100° F. for a week and a drop in weight to 104 lbs., which, during a period of nine months, again increased to 130 lbs.

The improvement was gradual; the recovery complete and has been held for three and one-half years.

DISCUSSION.

To have diagnosed otherwise than schizophrenia would have left too much of the symptomatology uninterpreted. The few emotional signs never gave the motif for the remainder of the psychosis and the delusions and hallucinations were of the precox type. However, there were threads which connected the content of the psychosis with the previous life of the patient, which might have been more carefully traced for they would have given the clue to the particular complexion of the mental disease and left the thought that its forbidding aspects were determined more by extraneous factors than by inherent qualities and mechanisms. Other things being equal the former is capable of a more favorable prognostic interpretation.

It was evident that the father was the object of the patient's paranoid suspicions just as he had been many years before the target of her mother's delusions. In this respect, at least, the psychosis obtained its coloring from impressions which were received in early life, fixed during the formative period and stored up for almost three decades. One may assume that with maturity came clearer understanding and conscious evaluation, and notions which were held as facts during childhood received their proper perspective but that these conceptions were ever lost is incredible. They were always at hand, ready to burst into activity and in one sense the psychosis merely swept aside the barriers which education, customs and convention had erected and there was a ready return to the beliefs of childhood. This was all the more easily accomplished since the father inadvertently closed the door of the

pleasant life which she had discovered among congenial friends and surroundings away from home, as the death of her mother plus her feeling of responsibility made it necessary for her to return and keep house for him and her brother. This mechanism finds substance in the psychotic incidents only a few of which may be given. Constantly she was suspicious and at times frankly apprehensive of her father, even though the hospital was to her undesirable, from many standpoints, yet she wanted to remain. Once she said "this insanity is awful, my mother had it before me." Again "when I argued with him (father) he said I was like my mother. I was glad to get away from him. Always afraid of father because my mother was afraid of him," yet she will live with him "because it is my duty," etc. Does one have to probe very deeply to see in the delusional belief of marriage and pregnancy a method provided by the psychosis to permit escape from an undesirable situation?

CASE 5.—Elizabeth M. was a single girl of 19, pupil nurse by occupation and born in America of native parentage. The family tree is unsound—root and branch. The paternal grandfather was a notorious "jail-bird"; the father an epileptic and ne'er-do-well. The mother, maternal uncle and an older sister are in a State Hospital with dementia precox. A younger sister is a psychopath, unmoral and a drug habitué. Another sister is in an orphanage.

If personality is to be regarded as the end result of the reaction between individual and environment, then it is important to appreciate the setting in which this patient developed. During her early childhood the father deserted the family several times. The patient never saw him after she had reached her ninth year. Soon after the mother was committed to the Trenton State Hospital and the remnants of the family were separated and scattered. The particular unit in whom we are interested became a public charge and had eight placements in as many private homes during a period of six years. Always she complained that there was not sufficient opportunity to obtain an education. At 16 she ran away to New York and finally was arrested for vagrancy. A Girl's Aid Society became interested and secured an excellent home for the patient with a woman physician. Here she did well and completed the first year of High School. Finally, against the advice of the foster mother, the patient entered a training school for nurses and for the ten months preceding the beginning of the psychosis she acquitted herself in a creditable manner. Among the character marks were many traits which pointed to a consistent attempt to escape from the sordidness of her early surroundings. She was bright, clever, ambitious and although described as *seclusive* there was likewise a craving for affection and a passionate attachment to anyone who stood in a relation of

superiority, such as her school teachers. There was a tendency to be dramatic, to gain attention and to be affected. She tried to read "lofty" books and held herself "above" her family. There was a lack of persistency but it is unlikely that the patient was either immoral or positively delinquent. She was self-willed and had a violent temper which she succeeded in partially correcting.

Her previous physical health has not been recorded.

No one incident in the patient's career stands out clearly enough to be regarded as directly precipitating the psychosis. Certainly the ancestral deficiencies were not without effect and, as will appear from the psychotic content, deleterious environmental thrusts also had considerable influence.

The onset was abrupt. She became forgetful, had ideas of reference and felt that the other pupil nurses were discussing her family. Without particular emotional reaction, she frequently asserted that she was becoming insane. At this time it was remarked that the symptoms closely mimicked those which both the mother and the sister had displayed in the early stages of their attacks.

The psychosis began in September, 1917, and reached a favorable conclusion in December, 1918.

In itself, it was marked by perverted and at first glance, unrelated behaviour. There were frequent episodes of spontaneous screaming, destructiveness and violent resistiveness. Often the patient was mute. Exhibitionism occurred. As the symptoms advanced there was objective evidence of regression to an infantile level. The patient acted, spoke, and dressed like a child, said "children do this," addressed the physician as "mama" or "muzzer" and was untidy. The ideation was either disconnected or expressed a dissolution of integrity. "Part of myself is lost"—"I am drifting away from myself." In all likelihood the sensorium was not disturbed. Hallucinations were present only once or twice and then the voices repeated her thoughts. The affect seemed altogether inappropriate. There was much apparent silliness, sometimes laughing and crying and less often cheerfulness, which, however, never amounted to exhilaration. Rarely there was unconvincing depression and once a carefully written and worded request for euthanasia. Always there was a wide separation between the few effective manifestations and the psychotic content. The somatic accompaniments were limited to a slight secondary anemia and a moderate loss of weight.

The patient was discharged "unimproved" after nine months of observation and removed to a public institution. Here she recovered in about six months. Has remained entirely well for five years, successfully completing a course in "nursing" in an osteopathic hospital and securing a position as office nurse.

DISCUSSION.

From the standpoint of rigid clinical objective psychiatry the diagnosis probably lies between schizophrenia and a grave neurosis

with the evidence rather in favor of the former. The pre-psychotic *seclusiveness* which seemed to merge gradually into a definite break from reality, the phenomena verging on catatonia, the regression to an earlier life period, the disintegration of the personality, the hallucinosis and the dementia of affect together constitute a strong precox reaction.

Should a more searching scrutiny of the life history of this individual and of the psychotic picture have discovered elements which would have rendered the prognosis less gloomy? In the first place the pre-psychotic tendency to withdraw from her surroundings was a not unnatural part of an attempt to escape hopeless home conditions which constantly threatened to engulf her. Toward those who stood outside the family circle and particularly those who had educational assets which placed them in a relatively superior position she was not seclusive. On the contrary she was demonstrative, craved affection and formed passionate attachments for them. Presumably the patient was the highest product of the diseased familial stock and from childhood sought to raise herself above its low plane. The personal weapons which were unconsciously forged to accomplish this purpose were ambition, a love of the dramatic and affectation which may be resolved into child-like imitativeness of those who were admired. The latter, a most common aspect of the normal psychology of childhood, became in this instance deeply engraven, unduly prolonged and a potent force. Thus, in one sense, we may view the personality (which suggested a dementia precox type) as a logical defense evolved against an inimical environment. It provided an avenue of escape by making it possible to substitute unreality for hard reality and it promised protection against the evil power of heredity. From a flash of insight which occurred during the psychosis (the patient attributed her illness to heredity. She had always hoped to be "strong minded" enough to evade its consequences but finally came to realize that she was powerless against its influence), it may be inferred that the fear of insanity was never far from the surface.

However, the mental disease was determined, there was at its very initiation a symptomatic suspicion of schizophrenia. Nevertheless it is well to remember in this connection that the patient had observed her mother and sister who both developed precox,

that her symptoms were the counterpart of those she had witnessed in *them* and that *she* was highly imitative.

Closely examined, during the course of the psychosis divorce from reality was often more apparent than real. She sought the attention of the physician who was interested in her case and could be readily controlled by her. It is possible that her outbreaks which stimulated catatonia were not as purposeless as they seemed and were dramatically stimulated bids for the centre of the stage. Likewise, the bizarre and shallow emotional currents may have had a somewhat similar source. The regression to child life reverts without great effort to the actual barrenness of her own early life—"you don't love me any more"—"nobody loves me," etc. Further, a partial psycho-analytic interpretation which was (perhaps unwisely) carried out, may have furnished material for the rôle of being a child. Finally, in it persisted the wish to cut herself off from her ancestry. Several times the patient said "I am out of a book."

Thus, there is a close alignment between the symptoms of the psychosis and the personality of the patient. Indeed, it is possible that the latter, which in itself was designed to be protective and was not basically schizophrenic, succeeded in imparting a false appearance of chronicity.

CASE 6.—Eliza D. is a single woman admitted at the age of 31. She had been employed as an inspector in a shoe factory and both she and her parents were Pennsylvanians.

The family history shows much of note. The maternal grandmother died at 74 of apoplexy. A maternal great great aunt died insane and a maternal great aunt was an epileptic and became definitely psychotic at 55. A maternal great uncle suicided by shooting. A maternal aunt was high strung and excitable and "took much medicine for her nerves." On the paternal side the grandfather who was a periodic alcoholic died at 74 of apoplexy and the father whose death was likewise due to a stroke was jealous, miserly and had a violent temper. A paternal aunt is a believer in spiritualism and her grandchild (the patient's second cousin) is physically helpless and an idiot. The mother and the sister are over-credulous, easily influenced and superstitious. At the onset of the psychosis, they "both suddenly felt a heavy dazed feeling come over them similar to the patient's first unusual sensation."

The previous general health record was good.

The patient was fourth in the order of birth, in a family of six children. There is no indication that she was spoiled in childhood and she is described as quiet, contented, sociable and unselfish. Grade schools were completed

at the age of 15 and she always led the class. In contrast to these favorable personality traits, there was self-consciousness, a lack of initiative, and inability to resist the opinions of others and a dearth of confidence. She made many friends but it is said that she would not marry because she feared that she would not be able to manage a household.

To be considered as an influential factor there was a love affair which culminated in a refusal on her part. Her lover enlisted for service in the World War. Immediately preceding the psychosis or more probably in its initial stage, the family called in a "spiritualist" who described himself as "God's Will Power Doctor." He massaged the patient, hypnotized and baptized her, and among other things told her of spirits of good and evil, exhorted her to sleep with her head to the north and warned her never to let anyone give her an hypodermic as it would be fatal. In view of the patient's physical condition at the time of admission to the hospital, it is exceedingly likely that there had been a break in general health sometime before the appearance of the first mental symptoms. In any event the early symptoms were largely somatic.

After a period during which she complained of severe head pain, roaring "as of thunder," deafness in one ear and showed "symptoms of exophthalmic goitre"—mental phenomena came to the fore. She was restless, followed her mother about in an aimless fashion, stared vacantly into the mirror or at anyone who spoke to her and became excited and resistive, biting, striking and expectorating. She attempted to convert those about her, quoted from the Bible in a desultory way, frequently assumed an attitude of prayer and was often mute. The sensorium was clouded and there was disorientation (?) and visual and auditory hallucinosis. Angels of happiness and spirits of evil were seen and mysterious tappings on the window, the voice of the devil and the conversation of the Deity (to which the patient listened attentively and smilingly) were heard. There was possibly, at this time, an undercurrent of depression and letters were written to relatives, asking forgiveness for wrongs which she had committed. A paranoid trend and reference ideas became prominent. The family were leagued with the evil spirits and people were talking about her and laughing at her. Food was refused and both it and her clothing (which she removed and then stretched out nude on the floor) were poisoned. She protested that she was being kept in a house of prostitution.

Nine months is a maximum estimate of the duration of the psychosis. On the day of admission she appeared "toxic" and catatonic and opposed passive motion. Next, there followed a resistive, noisy and destructive phase. Then she began to hide under tables and beds and when pressed for an explanation said "just funny stunts." Clothing was removed, there was refusal to dress. When clothed, skirts were arranged to resemble trousers. She let her hair down, or danced, bowed and smiled in manneristic fashion and without traceable relation to environment or situation. Somewhat schizophrenic was an attempt at suicide (?) without any signs of depression, by suspending herself from the wrists, utilizing a portion of a curtain and the chain from a toilet tank. She would stand and look

directly into the sun until her eyes became extremely blood shot. There was no sustained production or conversation. Once she talked at random about "the blue and the gray" and again resentfully about her straight hair which she braided in an effort to make it curl. A slight tendency to self-adornment was noted. At times she prayed loudly asking forgiveness for those (her family) who had treated her badly. By every criterion of objective examination the affective reaction was nil. In the daily notes she is described as displaying a silly smile and as inaccessible. On a single occasion she accounted for the habitual smile by answering "just dreaming—everything comes like a dream." There was illogical affectivity even in the restricted sense of Hoch⁸ and the silly grin with which she replied to queries concerning the suicidal (?) attempt. In the beginning she gave the impression of haziness, confusion and disorientation but later was clear and placed herself correctly. Memory, recent and remote, was not disturbed. She referred to her lover and made an illuminating comment of the "Will Power Doctor"—"He made me all funny—out of mind—crazy—the more treatment he gave me the queerer I thought he acted." Hallucinosis did not reappear. Delusions came to the surface only for a few days following admission ("poison in food" and refusal to eat).

While somatic accompaniments to the psychosis were not concrete, they were not entirely lacking and at least were suggestive. Insomnia was present for four months. There was slight exophthalmos. The weight was only 93 lbs. The tonsils were hypertrophic, the tongue coated and the breath foetid. There was cardiac irregularity with roughened first sound at the apex and the peripheral circulation was sluggish, the extremities being cold and cyanotic. Blood pressure was 105 and 102. There was a febrile rise to 100° F. on the seventh day. Leukocytosis only amounted to 9,300 (65.8 per cent neutrophilic).

Improvement began with gain in weight, a widening sphere of interests, increasing sociability and care of person. Discharged "much improved." A letter two months later was clear and coherent. There has not been any recurrence of mental symptoms after three and one-half years.

DISCUSSION.

Three types of mental disease had claims for diagnostic preference. In the early stages an affective psychosis and even more strongly a toxic reaction had to be considered. However, when the consciousness cleared and affective life faded out, while the patient remained silly, manneristic, was inaccessible, showed general "disassociation" phenomena and traces of delusional formation, dementia precox took the lead.

From the heredity a line of ominously unsound ancestors stand out and from the personal characteristics of the patient a dangerous influencibility either a product of the environment or raised to a

high degree by the family atmosphere of superstition and a gullible belief in anything that smacked of the supernatural. As far as the occurrence of mental disease itself (without dwelling on its specific variety) is concerned, even those who discount the importance of heredity will probably concede that this individual had at least a smaller amount of resistance than is usual. However, we are trying to discover what extraneous circumstances, if any, may have shaped the psychotic expression, so that a benign psychosis was mistaken for a malignant one. The attack of mental disease was preceded by certain prodromal symptoms largely of a physical nature which followed the first period of ill-health and although we have no exact medical account of the patient at this time, it may be inferred or at least strongly suspected from the character of the earliest mental manifestations, clouded sensorium, disorientation, visual and auditory falsifications, that there was a distinct toxic element. At some point between the break from normal bodily functioning and definitely before there was any concrete evidence of actual insanity, a charlatan whose stock in trade was a series of weird and mysterious practices and formulæ based on a supposed knowledge of the occult and supernatural was called in to "treat" the patient. This extraneous happening, which under ordinary conditions might have been insignificant, assumes considerable determining importance not only because it appeared at a critical time when the inhibition was lessened but also, and perhaps chiefly on account of the fact that we are dealing with an individual whose make-up lacked the ability to resist outside influence and who had had this character defect further emphasized by a familial atmosphere of gross superstition. We have only the barest outline of what transpired between "God's Will Power Doctor" and the patient. It is known that he massaged, baptized, and hypnotized her, discoursed about good and evil spirits and gave certain directions and warnings (a hypodermic would be fatal, etc.). From the content of the paranoid ideas, it is obvious that their material was obtained from the "treatments" and it is not altogether improbable that their very paranoid type likewise, at least partially, was similarly determined. Whether some of the remaining aspects of the psychosis, particularly the mannerisms and general behaviour which, to some extent carried the imprint of dementia precox, may have originated in the same way and thus

an intrinsically favorable psychosis given an unfavorable semblance cannot be determined, but is not altogether an unreasonable conclusion. It is at least worth while to scrutinize carefully the setting which exists when the psychosis is in its symptomatic formative stage and to search carefully the pre-psychotic life for elements which might add to the significance of this period.

CASE 7.—Edith X., 19 years old, unmarried and of native American stock. Maternal grandfather died of "stomach trouble" at 77 and was "feeble-minded the last few years of his life." During her girlhood the mother was "nervous" but at 50 is active and healthy. Maternal uncle insane and an aunt peculiar.

As personality assets the patient had a quiet, affectionate disposition; was bright, clever at music and normally fond of pleasure, dancing and out-door sports. She was the only living child and admittedly was spoiled, "never being crossed in any way." From the history it is obvious that the process of constant petting and humorizing soon developed undesirable character traits, notably undue sensitiveness, whimsical conduct and *anger in the face of the slightest opposition or interference*.

Physically there was "nervousness" but fairly robust health in spite of menstrual irregularity, constipation and occasional headaches.

The precipitating situation was constructed of closely interwoven somatic and psychogenic factors. Its units were a secret illegitimate pregnancy and criminal abortion, with sequelae of retained products of conception, septic infection and acute urinary suppression.

On the heels of this combination of serious circumstances, the psychosis began abruptly with boisterousness, talkativeness, laughing and crying spells. There was speech "confusion" and sentences were left unfinished. Visual and auditory hallucinations were prominent; but outstanding were episodes of behaviour strongly suggestive of catatonia—violence, screaming, profanity, refusal of food and medicine and apparently unmotivated attacks on her nurse.

The duration of the mental illness was about seven months. Its chief symptomatic characteristics were as follows: Seemingly purposeless outbreaks with screaming spells, assaultiveness, profanity, resistiveness. There was an occasional display of eroticism. Auditory hallucinosis occurred rarely; visual hallucinosis principally referred to vague shadowy outlines of faces was more common. For a time delusions of a gross somatic type were prominent—"hands not right"—"I'm dead," "head, face and shoulders deformed," "hair has no head to fasten it to." Once the ideation gave a strong hint of distractibility although disassociation remained as a possible interpretation. The sensorium, perhaps, was slightly clouded with time disorientation. In the main the affect was silly and shallow, with grimacing, flippancy, peevishness, impertinence, sarcasm and now and then childish whining, irritability and resentment. Frequently, superficial laughing and crying appeared but generally there was an undercurrent of mild

apprehension and evasive—suspiciousness. Memory was good and school knowledge fair.

During the hospital residence the physical phenomena were few—over acting heart, slight, transient fever, headache, insomnia, urine high specific gravity with many bacteria and weight reduced to 79 lbs.

Recovery with good insight was rapid, being accomplished in less than two weeks. It seemed to be speeded by a message promising marriage. The patient has remained well for seven and one-half years; is married and has one child.

DISCUSSION.

The weight of diagnostic opinion was strongly in favor of a schizophrenic reaction. The behaviour partook of the bizarre, grotesque nature of catatonia, hallucinations were present, there was somatic delusional formation, showing the type of ideation which Urstein has regarded as essential for catatonia, particularly "late catatonia,"⁶ but above all the psychotic emotional life as judged by its concomitant expression was out of all alignment with the other components of the psychosis and was apparently entirely inadequate and intrinsically lacking in depth.

Retrospectively, although this diagnosis cannot be absolutely negated, it is somewhat open to question. The possibility of error is to be sought in a single production which revealed distractibility though disassociation is not definitely ruled out (Stocker called attention to cases in which manic flight and catatonic excitement of dementia precox are practically indistinguishable),⁷ and in the somatic aspects of the precipitating situation. Visual sensory deception, partial disorientation and slight clouding of the sensorium may together constitute evidence of a toxic-exhaustive process. It is a well-known clinical observation that at the upper end of the manic-depressive scale there are cases in which the affective element is indistinct and there is an approach in the direction of delirious-like states.⁸ These instances merge into the clinically ill-defined infective-exhaustive group. Finally, it should be at least mentioned that with beginning recovery were associated a physical (weight gain of 23 lbs.) and a psychogenic favorable factor (offer of marriage) which latter provided both an outlet and a correction of the social effect of the pre-psychotic difficulty (illegitimate pregnancy).

In the psychotic content itself one may construe the purposeless catatonic outbreaks as an abnormal exaggeration of the patient's

personality make-up. In normal life, even insignificant pretexts served to provoke angry resistance and when, in the psychosis, she found herself so circumstanced that compliance and inhibitions were demanded, for instance by the nurses, it is quite conceivable that pre-psychotic behaviour patterns were easily set into motion in an extreme manner. Furthermore, the affect may not have been as shallow and disproportionate as appeared on the surface. It must be remembered that the patient had something to hide (illegitimate pregnancy) and she actually made a strong effort at concealment particularly during the formative and impressionable stage of the psychosis. Later the mild apprehension, flippancy, carelessness (?) of reply and even resort to silly laughing and insincere weeping may easily have represented a clumsy attempt at evasion. The childlike whimsical peevishness, irritability and resentfulness may likewise have been carried over from normality and have been somewhat elaborated in the psychotic setting.

CASE 8.—Margaret E., single, 40 years old and born in Pennsylvania of native-born parents. Maternal grandfather was alcoholic. Father and a maternal uncle died of apoplexy; maternal aunt had tuberculosis; one paternal aunt was "excitable" and another "peculiar" and a sister is "emotional."

The patient, the second of five children, was a bright child, social but markedly stubborn and "hard to conquer." In adult life her disposition improved and she gradually developed more likable qualities—"reasonable, uncomplaining, unselfish, happy and contented." She graduated from High and Normal Schools. At first taught school and later after the completion of a business course became a capable, hardworking, and thorough business woman with excellent judgment in financial matters. She was also a good cook and housekeeper.

At eight the patient had diphtheria and acute articular rheumatism; severe typhoid at 16; at 20 erysipelas and for 20 years the annual appearance of a "rash" accompanied by a constitutional reaction. There is a long history of chronic tonsillar infection and constipation.

At the age of 40 there was a serious love affair and the patient showed considerable grief over its unhappy termination. More closely related determining circumstances were an illegitimate pregnancy and rapidly increasing fatigue from the strain of constant overwork.

The onset probably occupied the greater portion of the nine months of pregnancy. With a ruinous secret to guard and situated as she was in a position of some prominence in the world of business it was perhaps not unnatural and not necessarily psychotic that the patient should become reticent, irritable and fall into "reveries." However, even after the objective evidence of pregnancy attracted the attention of her friends, she

ignored their questioning, took up Christian Science and stubbornly refused medical advice until in actual labor. The obstetrician who was summoned found the head already in the lower pelvic strait and she was rushed to a hospital a few minutes before the birth of a female child. Convalescence from labor was interrupted by violence, delusions and destructiveness and a neuro-psychiatric consultant made a diagnosis of dementia precox.

The course of the psychosis was the longest of our series, almost five years elapsing from onset to recovery. Approximately the last four years were under our observation, but we were able to secure an adequate description of the acute phase. The behaviour had many catatonic attributes: spontaneous screaming, violence, objectless motor activity, mutism and profanity, destructiveness, assaultiveness, and homicidal tendencies, cerea, stereotypy and automatism. There were partial stupor reactions. During periods of ideational productiveness, the contrast of the blank, stolid facies suggested to the examiner a Kraepelinian "word-salad" rather than flight. Probably the sensorium was more or less hazy. From time to time there was disorientation and auditory hallucinosis. The prevailing affective note seemed to be silliness, but there was also rage and angry, threatening response with frightful invective, to paranoid delusional formation which in the beginning was largely directed against her sister who "stole my kid." Unfortunately, we have only a poor account of the physical condition of the patient at this stage. However, it was noted that the weight was reduced to 86 pounds.

All in all, the patient's symptoms during her long stay in this hospital rather gave point to the diagnosis of schizophrenia. It is true that there was the appearance of distractibility but more outstanding were suspicion, childish behaviour, deterioration, seclusiveness and quiet but determined, continuous and somewhat systematized delusions in which her sister was the arch-conspirator and the physicians, nurses and hospital were also involved in the plot.

Her recovery, two years ago, was gradual but is seemingly complete. During the period of improvement there was a gain of at least 50 lbs. She married a year ago and is described as "perfectly well and happy and the picture of health."

DISCUSSION.

If unexpected recovery had not been ensued, the validity of the diagnosis of dementia precox would hardly have been questioned. The few manic traits which occasionally came to the surface were scarcely sufficient to overbalance the apparent clinical fact that the ideational content, behaviour and affect were not only intrinsically precox-like but were also at odds with each other.

However, the protracted course of the psychosis, the likelihood that in the early stages there was an impaired sensorium, the considerable weight-loss and the appearance of mild dementia (?)

after the subsidence of the acute phase at least brings an infective exhaustive process into question. Kraepelin, Tanzi, and others concede to this group the possibility of an extremely protracted course. One of us observed an instance in which the psychosis lasted 17 years and terminated in recovery.⁹

In considering the pre-psychotic life, there is perhaps no individual circumstance tangible and important enough to have directed clinical foresight toward a favorable outcome. However, the precipitating situation was significant and in this case almost overwhelming. The presence of an illegitimate pregnancy placed into jeopardy not only the position which the patient had attained in business but everything for which she had striven. Every avenue of escape was cut off. Faced by an unsolvable conflict, it is at least hypothetically conceivable that the conduct of childhood (markedly stubborn and "hard to conquer") was called back and became operative in a compensatory manner, determining in some degree the symptomatic dementia-precox-like trends of the psychosis. It will be recalled that at the onset there was an illogical and consistent refusal to accept the proofs of pregnancy and the first outspoken psychotic manifestations comprised a strong rebellion against the environment.

CASE 9.—Mary S., a single woman, 29 years old, of native American birth and ancestry. Both the paternal and maternal grandfathers were alcoholic; the former was twice divorced and the latter was a stock gambler, alternating between poverty and prosperity. The maternal grandmother developed mental disease at 70, following the death of her only son from tuberculosis. The mother was emotionally unstable, a chronic worrier and neurasthenic. Alcoholism reappeared in the father who was egotistical, high-strung, and dramatic. A paternal aunt probably had paresis. The family physician volunteered the statement that "the family life seems to have been distinctly fast, much bridge, cigarette smoking, drinking and society" and the history abounds in such expressions as "high strung"—"intense"—"over-sensitive."

That undesirable character traits should grow out of such an inheritance and environment goes without saying. In childhood she seldom went out and had no associations beyond the family circle. In play she particularly liked games which gave her an opportunity to pretend that she was someone else. In school she "fagged out" easily, never being able to finish a term and giving up entirely at the end of the second high school year. Despite these handicaps she was brilliant and always stood at the head of her class. Even in the middle teens she devoted herself to mystical literature, Hindu philosophy and theosophy, finally coming more or less completely under

the sway of the occult, affecting oriental furnishings and seeking the companionship of those who were interested chiefly in such matters. More favorable were her sociability within the family, an interesting manner, keen imagination, fondness of reading and outdoor life.

At the age of three there was scarlet fever followed by "a running ear and some deafness" and a prominent sequel of nose and throat catarrh. During early life there were bronchitis, malaria and typhoid fever all said to have been severe. At 27 sciatica developed, for which the tonsils were blamed and later removed.

Paving the way for the frank mental break was the death of a close friend—a man with whom the patient was very probably in love. She became somewhat depressed and cried a great deal and in order to bring her "out of herself" and improve her health a trip to Haiti was arranged. Here she drank champagne, went to many parties and finally had "an attack of kidney trouble" and possibly sciatica for which she was obliged to diet and refrain from social activities. During the period of enforced quiet, she became attracted to a man who made love to her but in the end told her that he was unable to marry on account of physical reasons.

Since the psychosis practically ran its course to a recovery in a month, it may be conveniently and briefly dealt with from the standpoint of the chronological sequence of its important events. The definite psychotic onset was sudden and marked by insomnia, motor excitement, singing and rhyming and fantastic and careless dress. Prominent were auditory hallucinations, referred to as "mental communications" and producing the pantomime of listening and the reaction of replying. Visual hallucinosis was suggested by a realistic description of a "death scene"—"love is stronger than death" and "I must go" were frequently reiterated phrases. She asserted that she was being hypnotized. There were rhythmic movements and when restrained the patient "cursed" and made personal application to her family of some rather unflattering psycho-analytic interpretations. In the main, the mood was exhilarated. There was apparent mental clarity for the next few days but the dominating influence of the hallucinosis was evident from a remark made at that time "if it came back to me, I could not resist even if it told me to kill your children. I must obey the voice. He will send other messages to me when he has cocaine dreams." Soon the "receiving of messages" recurred and for a time there was "hysterical happiness." Christian Science was taken up and the patient skipped and jumped and peered in neighbors' windows. In the hospital, at first, there was response to the "messages" from God, and the patient was the "Goddess of the World." This initial reaction was succeeded by a stage of emotional indifference during which the patient was clear but uncooperative and refused to answer questions, but instead yawned, turned her back and exposed her person. Later she seemed moderately depressed (but not retarded) cried and assumed the prayer attitude. Physical examination was resisted and there was ideational unproductiveness. Occasionally there was mention of "whispering voices in her mind," "overwhelming commands," "the taste of phosphorus" and "the sensation of electricity."

In the final phase there was increased freedom of speech and a queer medley of such expressions as "subliminal conscious"—"subjective normalcy voice." She was in the hospital for "poisoned kidneys" and "to regain vitality."

The somatic findings were few. A single day of less than a degree of fever, slight secondary anemia and sacroiliac tenderness comprised the positive phenomena.

Recovery with insight was accomplished within a period of three days and the patient has remained in excellent condition for 18 months.

DISCUSSION.

It is possible, of course, that we are concerned in this instance, merely with the unfolding of a psychotic episode in a highly psychopathic individual, yet wherever possible one seeks to avoid such an unsatisfactory diagnostic designation. For one thing, the clinical limitations of so-called constitutional psychopathic states are too vaguely defined. Both an affective psychosis and dementia precox must be taken into consideration. There was a fair degree of consistent feeling tone and estimated objectively the patient was en rapport with the remainder of the psychotic content during approximately one-third of the attack. From time to time this was supported by a moderate amount of motor urge and ideational activity. On the side of schizophrenia were inappropriateness of affect, at least, the appearance of depersonalization and thought division, mannerisms, and hallucinosis. Undoubtedly, it was this last symptom which was most striking and imparted a somewhat sinister aspect to the prognosis. In this connection it is well to recall, that for almost twenty years this patient had lived in an atmosphere of mysticism and thought in terms of the occult. True sense valuations were lost and there was repeated substitution of sensory deception until this artificial state became habitual. Thus, the major portion of the psychosis was transferred bodily from the pre-psychotic life and personality, presumably modifying the symptomatology of benign mental disease and giving it an unfavorable outlook.

CASE 10.—Frances C., age 43, the wife of a physician, native born and with a distinguished and cultured ancestry. The father was moderately alcoholic, but otherwise, if there were any neuropathic tendencies they had remained latent for several generations. However, of the collateral, a sister and two brothers were like the patient notably precocious and unstable. The sister died after four years of "chronic mania," one brother has acute mania (?) and the other is irresponsible and delusional.

The patient was a talented musician and educated in the famous conservatories of Paris, Berlin and Dresden. She was social, warm-natured, impulsive, "passionate" and strong in her likes and antipathies. Physically her reserve was never sufficient, apparently she never overcame the handicap of being "an eight months' baby" and remained delicate all her life.

After marriage in her early thirties and particularly after the birth of children (there are three who are unusually precocious and talented) she rarely went out socially and devoted herself almost exclusively to their care. It is interesting to note that the patient was a firm believer in telepathy and had converted her husband to a similar viewpoint.

The onset was probably gradual. Jealousy of her husband deepened into suspicion and she employed detectives to watch him. She spoke of having two husbands and two sets of children, a delusion which persisted throughout the psychosis. From the beginning she had to be constantly persuaded to take food.

The psychosis had a long course—four and one-half years. In general, and considered as a detached phenomenon, the behaviour was characterized by some display of resistiveness at every environmental contact. Motor restlessness was common, but periods of inactivity were not wanting, and there were episodes of mutism, catalepsy and semi-stuporous states. In strong contrast to the patient's previous habits was almost continual untidiness. The basic thought content, when accessible, perhaps, throws some light on the seemingly inexplicable actions. There was a high degree of indecision and as once expressed by the patient, she felt "torn between the fear of an act which I may do and the consequences if it is not done." Her reaction toward food was characteristic. It was almost always necessary to employ tube feeding, yet, if her tray was omitted she begged for it. It might remain in the room for several hours without the food being touched, yet if removed there was always an objection. At the beginning of a feeding there was often a marked amount of resistance and struggling, only to subside abruptly into absolute passivity. When given a promise that if a single meal was taken she could leave the hospital, the patient could not bring herself to partake. The delusional content which came only infrequently to the surface may also have been determining. There were vague references to "hypnotism" (both she and her children), "poison"—"trying to get rid of me," she was to be made insane so that there might be a divorce, the attending physician may have been a lawyer; there were two husbands and two sets of children; she was "pregnant and the food will kill the baby," etc. Such ideas were never strongly advanced but could only be gotten at with some difficulty and then might be produced in a semi-apologetic fashion as if the patient herself was in doubt. However, there was no mistaking the attitude of deep suspicion and distrust. An hallucinatory content was undoubtedly present but not clearly revealed. At most there were utterances now and then about "the presence of people or spirits." Both the condition of the sensorium and the affect were somewhat uncertain. At times the former seemed distinctly clouded but the question of whether this impression was not falsely conveyed by the setting of unreality called for by the

delusional trend remains open. In any event there was frequent evidence of environmental appreciation. There was weeping and repeated declarations of unhappiness but here, again, there was the same ambiguity. Smiles replaced fears, or the facies was expressionless or there were incongruities, such as for instance when smiling accompanied such productions as "my head aches me"—or "isn't this sentence over—Oh, God—it doesn't do any good." However, there were stages when apprehension was manifested.

The only physical sign was a steady and serious decline in body weight to the low point of 70 lbs.

Recovery was gradual but complete. The former interest in music was resumed. Her weight was almost doubled. The patient has since sustained a fracture of the hip which did not produce any interruption of her normal mentality. She had been well for three years.

DISCUSSION.

When the symptoms were added one to the other, the result was made to read dementia precox. Incomprehensible catatonic-like behaviour, paranoid delusion formation, the resemblance to affective diminution and the objective marks of deterioration seemed outstanding.

It is not at all impossible that there was more inter-relation between the symptomatic units than was apparent on the surface. The patient so profoundly distrusted the environment which her half-hidden delusional trend had created that she feared the effect of a single false step. Thus, it is probable that she consistently and fairly successfully sought to conceal any disclosure of her true state of mind. Any decision and the action it prompted might prove fatal, and with such a premise, it is not remarkable that whatever came to the surface, every spoken word, and every emotional expression movement was grossly distorted and made difficult of interpretation. It is quite conceivable that there was a strong underlying affective current made up of apprehensive-depression not far removed from the emotional reaction seen in certain forms of so-called involution melancholia. The case corresponds in some of its aspects to Urstein's "late catatonia" which he ascribes to an auto-intoxication of the climacteric and has attempted to split off as a separate clinical entity.²⁰

The world of unreality which the psychosis unfolded was not (for this patient) a hard achievement nor was it as long a step from her ordinary pre-psychotic life as is usually the case. She had become so convinced of the actuality of telepathy that it

became a part of her customary mode of thinking and ingrained into her personality. She had long credited the possibility of an individual being mysteriously influenced by others, so that when inhibition of judgment was still further lessened by mental disease it is easy to understand why the illness took on its highly individualized form. Whether or not this peculiar characteristic after it was carried into the psychosis was sufficiently determinative to modify the symptomatology of a favorable epochal affective psychosis and give it an ominous outlook is questionable but, at least, it should have been considered.

CASE 11.—Genevieve L. is a married woman, 36 years old. She was born in Pennsylvania as were also her parents.

The paternal grandfather and father both died of tuberculosis, at the ages of 80 and 60 respectively. One paternal cousin had an attack of melancholia and recovered. The patient's mother was a mild, "indifferent" woman who cared nothing for pleasure. It is noteworthy that she was married before the age of 18 to the patient's father who was then about 51. 33 years her senior and tuberculous, and that of the two sons and two daughters born between that time and his death, 9 years later, not one is entirely normal. The elder brother and sister are High School graduates, but live together on a farm, neither having married and they are alike slow in comprehension and not progressive. The youngest brother became mentally affected at 29, was taken to a County Hospital from which he escaped and was killed while walking along a railway.

The personality shows many more liabilities than assets. She was always slow of comprehension, stubborn and exacted her own way. Even more marked were unreasonableness, quick temper, sulkiness, an unforgiving nature and sensitiveness which was almost paranoid—"never forgets a wrong"—"thinks that any remark even about an unknown person is meant for her"—"talks of slights for a year afterwards." During the wedding trip she became angry at trifles, refused to speak to her husband and later on slight provocation would leave him for a week or two and return to her mother. She was always fearful of the possibility of children but not for eugenic reasons. At the age of 32 "moody spells" previously infrequent became more prominent and at such times she remained in her room, refused food and if visited complained of headache of other vague ailments. In spite of the gross character defects which have been mentioned, the patient was not ordinarily asocial but liked quiet pleasures.

Physically she was a normal, healthy child, apparently not being affected adversely by the discrepancy in the ages of her parents and her father's advanced tuberculosis. Measles, mumps and pertussis are recorded in childhood. The menses were irregular and accompanied by headache and backache. At 24 she had an attack of appendicitis not necessitating operation but followed by frequent iliac pain.

For some time before the psychosis there are recorded frequent moody spells, timidity and apprehensiveness at night. She awakened easily and insisted that someone was in the house. However, a true precipitating situation is not in evidence.

The onset was gradual. "About six weeks ago it was noticed that she did not complete her sentences. Two and a half weeks ago she held up her finger in warning and asked what was going on—said that she saw neighbors running in and out of a nearby home and heard them talking about her. The following morning she appeared to be dazed, could not attend to her work properly—then became agitated and apprehensive; had many ideas of reference; moaned and wrung her hands; feared that she and her husband were to be killed; that there was blackmail and that she was to be thrown out of the church; wanted to know what the commotion was about; feared that all of her relatives were dead." "She was not suicidal, but attacked her husband when angry, kicked and threw articles about. There were auditory and visual hallucinations. She imagined that she saw bugs crawling on the wall and heard voices. Thought that her husband was going to be married again. Imagined that there were wires attached to the bed and through the rooms to listen to the conversation. Thought that someone had exchanged imitation diamonds for her good ones. She was restless, walked around the house but seldom went outside. She did not seek company but if they came she was pleasant and talked normally. Did not speak to them of her delusions. She had no interest in her work. Refused to bathe until yesterday. As a rule she was talkative but had periods lasting an hour of two when she was mute. In the beginning of her illness she spoke of poison in her food placed there by Catholics."

Although the exact time cannot be fixed it is probable that the psychosis terminated in about one year. At the hospital a ten weeks' cross-section came under our observation. The more acute phase of the psychosis had subsided and there remained an indefinite condition which was difficult to interpret correctly. Although there was occasional restlessness and more or less continuous resistiveness to approaches from the environment, yet in the main there was a predominating motor inactivity. She moved very slowly, ate slowly and, indeed, from a strict psychiatric standpoint, was markedly retarded. The setting in which these phenomena appeared, while not wholly devoid of affective accompaniments was at least only indifferently supplied. There were episodes of weeping but no other clear evidence of depression. Once the eyes filled with tears but the face was placid. The examiner got the impression of indifference, apathy and laziness. There were several scolding spells and once the voluntary expression of the thought that she "felt like kicking and striking everyone." A single manifestation of destructiveness occurred. The sensorium was probably not impaired. There was a trace of albumin in the urine and the temperature reached 100° F. on the first, second, fifth, seventh, eighth and tenth days. The patient was discharged as "quiet and dementing," but she soon recovered and has remained well for almost six years. A recent report describes her as being in "full charge of her house, with no sign of her former trouble."

DISCUSSION.

In view of the paranoid type of onset and early stage which was succeeded by a less active phase, presenting a symptomatology which led to the inference of a deteriorating process, it seemed as though dementia precox was the most likely diagnostic possibility. However, if the first six weeks of the psychosis are closely scrutinized one finds that the evolution of paranoid ideas was almost too rapid for true schizophrenia of this type and furthermore there is some reason to believe that the sensorium in the beginning was not at all clear. There was even at this time some suggestion of affective reaction (agitation, moaning and wringing of hands) but it was more or less obscured by the wealth of delusional detail. Furthermore, in the later course of the mental disease, the motor retardation was very considerable, so that at least it may be assumed that underlying emotional feeling was restricted to only a limited range of expression. The patient gave the appearance of apathy but it is probable that if attention had not been attracted by and held by the delusional formation at the beginning, an affective psychosis would have been more strongly considered. Then the apathy (?) would undoubtedly have been thought of as a not unnatural part of deep retardation. Stripped of the paranoid ideation there would have been more hesitation about pronouncing the psychosis a precox reaction. Since the personality in any given instance represents the sum total of pre-psychotic experiences and the reaction to them, it always deserves consideration as carrying the potential for influencing the content and peculiarities of expression in a subsequent attack of mental disease.

Disintegration or retention of personality have been advanced as a measure of the malignant or benign characteristics of the psychosis. In the patient who has been considered, it will be recalled that the make-up was normally (?), or at least before mental symptoms developed, sensitive to almost a paranoid degree, so that the prominence of this trend was to be expected and it did not imply a crumbling of the personality structure. This factor should have been considered in the prognosis, particularly in view of the fact that the delusions were not evolved gradually and systematically but came rapidly into being as if material was already at hand and was merely brought to light in an exaggerated form when mental disease removed the need for inhibition.

CASE 12.—Sylvia Q., dressmaker, a divorced woman, 38 years old, born in New Jersey.

Beyond the fact that the patient's mother and two sisters and brothers are living and well, the family history was not obtainable.

She is described as bright, cheerful, agreeable, industrious, social and fond of amusements. Less favorable personality traits are a certain inflexibility of opinion and a resentful attitude toward opposition. She was apt to become "nervous and irritable" over trifles. Toward her family she was antagonistic and felt that they had ill treated and neglected her. She married at 17, but divorced her husband a year later on account of infidelity. A second marriage at 30 terminated in a divorce at the end of two years because of cruelty.

Her health has been good until a year before the psychosis appeared when she suffered from influenza. A second attack of influenza preceded the mental symptoms by three weeks.

After a period of insomnia, she suddenly began to complain of cardiac distress and appendiceal pain, sent for a physician, said she was going to die and wanted to make a will. There was motor restlessness and appearance of happy excitement which stood in marked contrast to paranoid and depressive ideas. At the onset the sensorium was clear and the memory retained although the delusional trend produced certain falsifications. She hallucinated in the auditory field and heard people walking about the room at night. There were vividly colored persecutory ideas—poison in the food—her body was being injected with nitro-glycerine—the dictaphones in the room—and she conversed in whispers for fear the Catholics would hear her.

The psychosis lasted about six months. At first there was considerable activity, noisiness, singing, restlessness and resistiveness. This gave way to a sarcastic and disagreeable attitude which finally was replaced by apparent indifference, with, however, the occasional occurrence of weeping. The patient was now constantly seclusive, hallucinated and delusional. During the day her friends spoke but at night she was frightened by the voices of her enemies and there were "fumes in the radiator and a stench in the hall." The delusions practically constituted a system, embraced all persons and activities with which she came into contact and were tenaciously held. She spoke in whispers "for fear the Catholics may hear," "the Catholics were injecting poison into her body," "infected bugs and mice crawl over me at night," the night nurse was "an infected Catholic." "I'm infected in my ears—in my nose—in my abdomen—I think I'm pregnant." "If I open my door some tubercular case blows in my face." "I'm a physical wreck—I've been inoculated with tuberculosis and nitro-glycerine—I realize that this nitrate of silver is given me to eat out my insides." Somewhat suggestive of schizophrenia is the production "I'm a physical wreck—I sleep in sections and I lie awake in sections." Now and again, the ill treatment was referred to her first husband whose persecution had never ceased and who had tried to drive her insane. There is an element of expansiveness in these productions: "I compose poetry fluently; with my brain . . . I could move

the world." "Haven't I saved enough people to be saved myself"—"everyone is working against me." To the day of discharge the patient reiterated "I am not insane, I have been given slow poison and persecuted for 8 months." "Things are said and done to make it uncomfortable and unpleasant for me here and my friends are kept from visiting me." Although there was a behaviour improvement yet the delusional system was scarcely corrected until after the patient had left the hospital. For a brief period corresponding to the initial phase of activity after admission, the sensorium was somewhat hazy but soon became clear.

Physically there was a forceful cardiac impulse, with a soft non-transmitted systolic pulmonic murmur, and a pulse rate of 120. The initial blood pressure reading was systolic 209, diastolic 126 decreasing in six weeks to 148 and 90 with a pulse rate of 70 and no appreciable evidence of permanent heart damage. The ends of the fingers were clubbed and the joints enlarged. The vision of the right eye was impaired and its pupil larger than the left, both being irregular but reacting promptly to light and accommodation. Pubic hair showed a tendency to male distribution. Weight on admission was 103 lbs. dropping to 92 pounds at the end of a week but again increasing to 108 lbs. at the end of three months. There was a mild febrile reaction for a few days not reaching 101° F.

After discharge the patient successfully corrected her psychosis and has remained well and efficient for seven years.

DISCUSSION.

In the absence of any sustained emotional reaction and since the brief manic exhibition soon disappeared or at least was lost sight of on account of the prominence of paranoid delusion formation, dementia precox was the majority diagnostic choice.

It now seems probable that the two attacks of influenza were not properly weighted in arriving at the prognostic judgment. It is likely that they were to some extent ignored largely because the sensorium was not much impaired during the psychosis. It is somewhat questionable whether this consideration alone should be permitted to constitute the sole diagnostic criterion. There were in this patient definite indications of severe circulatory disturbance in all likelihood traceable to the influenza and on the mental side acute hallucinosis and persecutory ideas which, when their nature is considered, flowered almost too rapidly to be truly consistent with the more mature varieties of paranoid precox. Again, it should be remembered that in spite of the considerable degree of socialization, the personality had also a paranoid aspect, particularly in evidence in the patient's attitude toward her family. Whether or not this was basic enough to influence the symptomatic direction,

after contact with reality had once been broken cannot be arbitrarily and introspectively decided. The mitigating factors which should have been thought of in the prognosis of this rather unfavorable appearing psychosis are the close chronological sequence of grippe and abrupt mental symptoms developing in an individual who was in some sense inclined to be paranoid.

CASE 13.—Matilda N., 40 years old, married, born in the United States of German parentage.

The direct ancestry is clear, but of the collateral a paternal uncle died in a mental hospital and his son had a psychosis from which he recovered.

The patient was the sixth in a family of nine children. She is described as conscientious, quiet, reserved, philosophical, sociable, uncomplaining and contented. It is recorded that she was unduly sensitive and timid. At 16, she completed the grade schools and then clerked in her father's bakery until her marriage at 25. Her interest seemed to dwindle and she read very little, did not seek diversion or entertainment of any kind and in fact, rarely left the house.

Her general health has been fairly good. In addition to the ordinary childhood diseases, there was typhoid fever at 18. Subsequent to the birth of a child at the age of 27, the menstrual periods became decidedly irregular with intermittent amenorrhea.

During the first year of marriage, when the patient was 26 years old, abortion occurred during the third month of pregnancy and was immediately followed by a paranoid psychotic episode. At that time "they lived . . . in an apartment house. The woman in the apartment on the floor above had a mental breakdown and annoyed the patient in many ways, watching her and slamming doors. The patient was much distressed and annoyed, went away for a visit and for three weeks had delusions about the woman, thought that she was following her and watching her. Recovered in three weeks and since then has been entirely well."

There was definitely a conflict in the family situation. The husband's occupation took him out of town for days at a time and in addition he often went out in the evening without offering any explanation. The patient was lonely and "worried about the possibility of her husband's friendship with other women." This state of mind existed for many years.

Rather suddenly while with her family she became irritable and moody. Soon after, at the table, she screamed, knocked over a sugar bowl, threw a knife across the room and slammed a door, saying that she had had an electric shock. The patient had assisted in the care of a neighbor who had developed a psychosis and this experience was frequently referred to in the psychotic content. A paranoid trend became prominent and the patient threatened to lodge information about her persecutors before the authorities. Emotional response was indefinite. She wished for death but made no suicidal attempts. There were auditory hallucinations and the voices were answered. The Lord talked to her. Ideas of persecution constituted the

outstanding feature of the onset. Her family, her husband and everyone were leagued against her. Wires were attached to the house through holes bored into the cellar and the "man next door" shocked her with electricity not only when she remained at home but even while she rode in the automobile with her husband. The neighbors were spies who were watching her and doing everything possible to annoy her, because she had called in a physician. (She had as neighbors Christian Scientists on one side and Faith Healers on the other.) The patient continued to do the housework, consciousness remained clear and memory orientation undisturbed.

The psychosis occupied about six months. At the hospital she was quiet and cooperative, suspicious and with no evidence of clouding or distinct affective display. On one occasion she cried and seemed depressed but insisted that she felt well. There was auditory and visual hallucinosis. There were "wireless messages" and the voices of her mother and sister. Her daughter called "on the phone" and asked her to return home. At night voices "repeated names." There were "shadows on the wall above the door" and "an animal—a casket—a machine that looked like a ladder."

Movements were slow and deliberate and there was hesitation and possibly retardation in answering questions.

Delusions persisted for several weeks. "The doctor in the cellar is sending electric currents through me" and "someone was spiteful and wanted to torment me," etc. After a time absolute belief became weakened, she was "puzzled," and more open to argument and finally after an evasive, reticent phase, there was beginning insight—"imagined things due to nervousness."

Somatically there was acne, a coated tongue, absence of menses, a trace of albumin in the urine, and 13,750 leukocytes (75 per cent neutrophiles).

Improvement progressed to complete recovery which has been maintained for 10 months.

DISCUSSION.

A paranoid psychosis developing at the beginning of the fourth decade has a strong diagnostic association with late dementia precox and since in this instance the centre of the stage was held by parancid delusions without surface indication of well-marked affective trends, it was so regarded.

Favorable prognostic forerunners, if any may be said to exist, concern themselves chiefly with the strengthening and accentuation of the unfavorable dispositional traits, sensitiveness and timidity, and the effect of a somewhat unsatisfactory marriage. This, even in pre-psychotic life engendered a chronic state of worry, distrust and suspicion which not unnaturally merged into its psychotic equivalent—a paranoid delusional trend. This was so prominent that the occasional appearance of depression and retardation escaped close scrutiny.

Thus, there existed an alignment between conditioning environmental factors and the psychotic content. Furthermore that the patient was extremely vulnerable to mental disease is shown by the psychotic episode at the age of 26, the material of which was likewise paranoid, and drawn rather directly from a mental case with whom she had been in contact. In this instance an abortion apparently served to diminish resistance and lessen inhibition. In the more definite attack under consideration, somatic elements were not emphatic although the leukocytosis amounted to 13,750 and there was amenorrhea. Consideration of all these features together with the prompt recovery in the first attack might have led to a more favorable opinion.

CASE 14.—Miriam V., a married woman of 33, American for at least three generations. Paternal grandmother "childish" before death from brain carcinoma. Maternal grandmother "out of her head" before she succumbed to heart disease. A sister had "a nervous breakdown," marked by a strong religious trend and she never succeeded in making a wholly satisfactory adjustment.

As dominant personality traits there were *abnormal timidity and apprehensiveness* which the family records attribute to a fall at the age of three. The patient was domestic in her tastes, inclined to the quiet and serious side but ambitious and a hard worker with a fondness for outdoors. The balance was even enough to keep her in good general health until the occurrence of an unusual combination of inimical conditions.

The precipitating situation may be reduced into two elements, extreme fatigue and apprehensive worry. In August, 1918, the husband was commissioned in the Medical Corps of the Army, and two months later he was called to active duty. The period coincided with the second to the fifth month of the second pregnancy, and during it and previously the patient apparently diminished her resistance to a minimum by arduous attention to household tasks, active assistance in an extensive country practice with any time that remained devoted to the sad necessity of gathering together an overseas outfit. In December, which was the fourth month of pregnancy, influenza developed but the patient shortened her stay in bed to a dangerous point and insisted, against medical advice, upon visiting her husband who was in a Virginia training camp.

The onset was acute and the initial, prevailing symptomatic note was maintained throughout the course of the psychosis. The original delusion that counterfeitors were at work in one of the hotel bedrooms was well supported by auditory hallucinosis and was logically followed by the belief that a powerful organization was plotting to destroy her on account of the accidental discovery. It is noteworthy that during the early psychotic stages there were two partial but rather distinct remissions and that each time the exacerbation followed in the wake of an extraneous factor, the

first being a difficult instrumental delivery and the second the death of the patient's mother.

The psychosis ran its course in nine months. The paranoid delusional formation which was closely paralleled by both visual and auditory hallucinations attained to an unusual degree of fantastical expression. "Violet ray," "poisoned food," "throwing of gas," "white slave," "dictaphones," "germs," frequently recur or "poison daggers being shot," "ivory arrows shot into the brain to cut off the nerve endings," "celluloid pledges driven into the brain with high-powered violet ray," etc. In the following there is a suggestion of splitting, "an influence pulling my thoughts away," and "he has gotten the velocity of my mind which must be the same as his own." *In the history there is a notation to the effect that the patient just before her illness had read Arthur B. Reeve's detective stories with great interest* and the delusional material is obviously based on these highly colored narratives. Fleeting periods of insight appeared from time to time ("something is radically wrong with my mind," "when they come they are so real") but were soon eclipsed by new hallucinatory-delusional experiences. Objectively estimated there was logical and appropriate affectivity. During active phases it was not possible to approach the consciousness for study but during temporary subsidence, the sensorium was clear.

The physical findings were not remarkable—a dry, furred tongue, tenderness in the right ovarian region, traces of albumin and hyaline casts in the urine, red blood cells 3,998,000, hemoglobin 75 per cent, white cells 6200. For two days there was fever of less than a single degree with corresponding pulse acceleration. Weight a few pounds under the normal.

Recovery with excellent insight was almost as abrupt as the onset. It was completed within three weeks and has endured for more than three years.

DISCUSSION.

From the rating of strict clinical psychiatry this psychosis, without great difficulty might be classed as a dementia precox reaction. The wealth and type of delusions with the accompaniment of hallucinosis involving at least two sense fields has some diagnostic value, particularly with the background of presumable personality splitting. Again, the criteria of intoxication, both somatic and psychic (exclusive of hallucinosis), at least as judged by the usual clinical standards, were scarcely pronounced enough to justify the label of toxic psychosis.

Opposed to dementia precox were chiefly the fairly close accord between the affect and the psychotic behaviour and content and perhaps the brief intervals of insight with abeyance of the symptoms. In themselves, these do not lead the way to a more satisfactory opinion.

May any of the seemingly malignant aspects of the psychosis be explainable and given a more benign cast by regarding them as the outcome of the reaction of the predisposing events upon the inherent make-up of the patient? The former practically comprised a vicious somato-psychic circle productive of pathological fatigue (strain of overwork, pregnancy, influenza, and its destructive after effects) and a definitely injurious and long-continued emotional state of fearful anticipation (husband accepted for over-seas service, expected childbirth). Furthermore, even after the first mental symptoms appeared its seriousness was still further augmented by added increments—a difficult instrumental labor and the death of the patient's mother. These conditions were imposed upon a *timorous and apprehensive personality*. A second point of some significance, lies in the fact that just preceding the psychosis the patient had been fascinated by a series of detective stories dealing with highly bizarre and fantastic material. Frequently, these vividly colored incidents of fiction were reproduced in the delusional content. It seems not improbable that fatigue may have finally reached a point where reality and fantasy were no longer sharply demarcated and thus, perhaps in some sense the paranoid precox-like syndrome was accidentally determined.

CASE 15.—Catherine A., single, 29 years old, native born. The maternal grandfather and a maternal uncle were alcoholic. The father was quick, clever, but "nervous" and the mother is described as well-balanced but "deaf" and "not alert." Three brothers and one sister are normal and efficient.

The patient was quiet and not unsocial. The remainder of the personal characteristics seem to have been determined largely by environmental circumstances arising after the period of childhood. The patient did fairly well through the graded schools, although she was not unusually bright. Her ambition led her to do much reading and self teaching and with outside aid she finally acquired the equivalent of a High School course. An attempt to teach privately eventually failed, probably because the patient was a *pronounced dreamer* and lacked the practical ability to find ways and means to overcome the drawbacks of an informally acquired education. In order to support herself she had to take a position as saleslady. Always ashamed of the work she compared herself to her more successful sister and brothers and constantly enlarged an already existing sense of inferiority. How motivating this influence was may be judged by the plaint which came to the surface even at the height of the psychosis—"I didn't want to sell stockings."

The previous physical history was negative.

The precipitating situation occupied a period of at least two and one-half years. Its background was constructed of a series of ineffectual efforts to escape mediocrity. She tried to read "deep" books in order to increase her intellectual equipment. From the retrospective psychotic productions, it is evident that at this time she had tried for "greater things for years," consoled herself with the vain hope that the work she disliked was merely "a stepping stone" or felt herself "caged" and "an onlooker." The death of her father resulted in deep grief and a tendency to seclusiveness and two years later the death of the minister whose church she attended was the occasion of sorrow "out of all proportion."

The onset was insidious. Depression, a desire for solitude, taciturnity, slowness, forgetfulness, lack of interest and incoherence in the letters she wrote developed gradually over a period of almost a year but she was able to continue to sell goods until a week before the hospital admission. The depression augmented, there were crying spells, but also episodes of silliness. There were ideas of personal unworthiness and self-accusation. She "influenced" people harmfully and "had a vision to do things but could not." The "presence" had "departed." The patient had bizarre somatic notions, "coldness in the body and middle of forehead" which she feared would spread to the family.

The actual psychosis was somewhat unusual in type. Along with clearly retained consciousness and an affective reaction which had to be objectively judged as diminished and inappropriate there was self-blame ("I am to blame"—"full of spirit poison"—"I did not illuminate my corner"—"I was perverted"—"should have let divine love in") and a delusional content somatic ("iciness"—"stoniness"—"like cement"), but chiefly distinguished by belief in a power like "telepathy" which, against the patient's inclination, did harm to others. It made other patients and nurses "cough," gave a "metallic harshness" to their voices—"caused stomach trouble." She did not want to look at the physician. "I don't want you to come into this strange queerness," etc. Hallucinations were infrequent and indefinite, "thoughts speaking to me"—"I see people I knew"—"I am semi-conscious." In the initial and final stages of the psychosis there was evidence of depression but in the interim practically no concomitant physical expression of emotional stirring. However, she said there was "no emotion left" and "I've lost and must regain something."

The somatic findings were slight fever for a week, low blood pressure, (90 systolic) the repeated presence of albumin in the urine and weight reduced to 94 lbs.

The recovery was fairly rapid, was complete and there has not been any sign of recurrence for eight years. Fortunately the patient was put into contact with constructive conditions and a year after her discharge graduated from Pratt Institute. The following letter deserves inclusion in the case report, since it shows how tactful handling succeeded in overcoming the sense of inferiority:

"On this Thanksgiving Day it seems proper that I should write and tell you how I am faring, so much better than I had hoped when I last

talked with you. Then I was preparing to go to _____ to take a position with _____, a woman who through my sister had become interested in me. I did not think I could carry on the work through the summer, but as it seemed advisable to my family and also to yourself for me to try it, I did so. I found long hours and a great deal of work attached to the preparation of three meals a day for from three to six boarders, besides three separate meals for the family and helpers, from four to seven persons. The daughter of the house helped when necessary and the mother sometimes, but before many weeks had passed they began to remark upon the improved order of the kitchen and how I had learned to save unnecessary work. At times things went wrong, but these people were very patient and helpful, seldom criticising, always noting improvements. Mrs. _____ would make me talk sometimes, and when I spoke depreciatingly of myself, she would answer 'what you do speaks so loud, I can't hear what you say.'

"She is personally acquainted with some of the managers of _____ Institute, here in _____. Perhaps you know of the place, very much like _____ in _____, giving practical courses in almost every subject you can mention. There is a one-year course in Institutional Household Science and this, upon application of Mrs. _____, they recommended for me. It prepares for the work of the matron, professional housekeeper, lunchroom manager, or dietitian by giving instruction in Chemistry, Physiology, Dietetics, Principle of Cookery, Institutional Problems, Accounts, Marketing, Lunch Room Work, Laundry Work, House Furnishing, Care of the House, Serving and Physical Training.

"My sister's very substantial raise in salary and her employer's kindly offer to stand ready to assist, making it financially possible, the persistence of Mrs. _____ and her confidence in my ability, opposed to my utter lack of confidence, led me to undertake the course, though in a very half-hearted way. Mrs. _____ had written several times to the Director of the School of Household Science and Art of the Institute, and also to the Registrar, a personal friend, concerning me, as a result of which I was received and welcomed very cordially.

"The Institute has no dormitories and as a consequence, all the houses in the vicinity, most of them at least, are filled with roomers or boarders. I am a roomer here, with three other girls, the mother of one of them, a school teacher, and another woman. Our two maiden landladies take a kindly interest in their "family" and the place is quite homelike in its atmosphere. They tell me I just fit into the place of a former student in my course of whom they became very fond. The young Art student rooming next to me says she has adopted me as a sister and some of my classmates are glad to come to my room or to invite me to theirs for help in their studies. They think I know a great deal. In fact, I am tutoring one of them. I was one of four out of forty who passed the preliminary examination in arithmetic. The results were not made known for three or four weeks, when we were somewhat acquainted, and I received a real ovation from the class when it was known that I had passed. I have gained a reputation of having Chemistry before, which I never did, and have

received notice from two of the best educated women in our division, of 20 students, that I must never again dare answer correctly a question that has passed them, on penalty of meeting them some dark night!

"You know, I trust, Dr. ——, why I mention these things. Because them seem so far away from the experience I am trying to forget. My mind is not even now what it should be, and sometimes I have dreadful dreams, but I can sleep from the time I put away my books, usually eleven or after, until daylight, even with an "elevated" passing my open window. I eat a hearty breakfast and a good dinner with a light lunch at midday, and am, to all appearances, well and strong, though sometimes annoyed by aches and stiffness in elbows and knees. My weight when I went to —— was 94 lbs., when I came back 111, and I do not think I have lost much since September.

'I trust I have not taken too much of your time with this long letter. I really had not the heart to write once a month, but perhaps this will answer for all. If Dr. —— is still with you will you give her my regards? Thank you both for all the interest you have taken in me.

"Sincerely."

The patient has had two good positions since 1916 and is doing well in every respect.

DISCUSSION.

This case may be said to illustrate the unfavorable diagnostic and prognostic opinion which may result from an effort to place every individual into one of the established symptomatic groupings. On such a basis there were two possibilities—dementia precox and manic depressive and the clinical evidence, particularly the apparent absence of real affect and the systematization of the delusional theme (which cannot be reproduced in an abstracted report) was somewhat in favor of the former. Incidentally, it may be remarked that vocal expressions such as "no emotions left" and the like, which occur in this patient may really be an index of considerable underlying emotional activity which is masked by the logical pursuance of the notion of absence or deficit, thus imparting to the conduct a veneer of indifference and failure to react proportionately. Finally, the delusional conception represented a kind of inverted reference idea, *i. e.*, the environment was being harmed by the patient and not vice-versa, as is common in schizophrenia.

There is another way of looking at the psychosis, apart from the standpoint of conventional diagnosis. In a sense it was the psychotic representation of the struggle against inferiority. No psychoanalytic interpretation is needed to understand that such productions as "I felt the influence lived in me," "The people I like I

grip and they can't get away and they don't know what is the matter with them," "I affect all those people about me," "The highest characters are simple and dream-like," "I've a feeling of rising and thinking," are compensatory, symbolizing the attainment of power which was beyond reach in the pre-psychotic experiences and strivings. Thus the mental disease may without too much effort be regarded as an outlet which began after repeated failures "to find the keynote—to be successful and an idealist." It has often been emphasized that the essential difference between other psychoses and dementia precox lies in our ability and inability, respectively, to place ourselves en rapport with the patient, in other words to understand or fail to understand the mechanism and symptoms.¹⁴ May we feel that whenever, as in the patient under consideration, the psychotic content is merely the pathological expansion and out-growth of an *understandable* life situation which for a time at least had come to an impasse, there is a better chance of ultimate return to normality? Is the close alignment between a *sufficient* and *real* precipitating situation and the temporary satisfaction and solution by the substitution of unreality against the existence of a malignant psychosis?

CASE 16.—Celia Z. The patient is an Italian born girl, 19 years old and unmarried. She was the second of four children and there is no trace of mental or nervous disease in the family history.

She was a bright child; walked at ten months and talked at the age of one year. At six years she had meningitis which left as sequels permanent and complete deafness and mutism. Although she had never attended school nor been trained to read, her native alertness had enabled her to work out a combined system of pantomime and lip reading, through the medium of which she was able to carry on extended conversations with her family and friends. She did housework, visited the neighborhood, seemed contented and even ambitious enough to plan to attend a Deaf Mute School. Her general health was excellent.

The onset was abrupt and as far as could be determined without external precipitating circumstances. For a single day she was "excited" and "afraid." The next day she had a headache and would not get out of bed. During the succeeding week there was visual (she saw many people in the room) and auditory (?) (heard people walking about) hallucinosis. It is said that at this stage she did not recognize her family or know where she was. During the month preceding hospital admission the patient spent most of the time in bed, was dull and stupid, occasionally "laughed" very loudly but was "neither happy nor sad." She ate food when it was offered but never "asked" for it. Did not "answer" questions as readily as formerly and was indifferent to her family and surroundings.

The psychosis had a duration of almost eight months. For the greater portion of the time she was dull and unemotional. Otherwise the affective expression was limited to a peculiar shrill laugh and occasional crying spells both apparently unrelated to behaviour. The characteristics of the latter were primarily inactivity with the following variations from time to time: moderate cerea, mannerisms such as wagging the head to and fro with simultaneous protrusion of the tongue, grimacing, stereotypy of movement, seemingly purposeless motor excitation with aimless running about and destructiveness or beating her head and blindly striking her hands against the iron porch screen. Often and seemingly without stimulation from or relation to the environment she would emit a series of short, sharp sounds not unlike the bark of a dog. She was usually untidy. She did not refuse food but first smelled it and examined it carefully. Only rarely did she appear to be in touch with her surroundings, once when she took the physician's stethoscope and placed it in her ears and again when she tried to tease another patient or when she looked at magazines.

Examination revealed a discharging ear without any constitutional reaction and an old right-sided peripheral facial palsy with considerable muscular twitching.

Recovery as far as could be ascertained was complete and for three and one-half years the patient has been "the same as before the attack."

DISCUSSION.

On the basis of the objective clinical signs dementia precox was the most reasonable diagnosis. The outward manifestations of feeling had to be judged as either detached from or being at discord with the conduct which in this instance was largely restricted to motor phenomena. Intrinsically these (unmotivated (?) excitement, apathy, cerea, mannerisms, grimacing, stereotypy, etc.), while not the exclusive property of schizophrenia are nevertheless more common to this psychosis than to any other.

The case is valuable not so much on account of the sense deficit which probably distorted the symptomatology of the psychosis, particularly its affective elements so that the observer was given the impression of malignancy, but because it suggests how dependent are our observations on a correct evaluation of the state of the consciousness. In this patient an important channel (hearing) by means of which a considerable part of environmental understanding is attained and an organ of emission (speech) through which we largely convey our thoughts with their emotional coloring to others, were both cut off and the difficulty of recording feeling tones by appropriate somatic responses was still further increased

by paralysis of some of the facial muscles. While the sensorium was probably clear the effect which was produced is perhaps comparable to states in which some degree of clouding exists and where there is as it were a crippling of the receptive-emissive apparatus at its source. While it is true that a close alignment between thought, behaviour and affect often justifies the assumption of a favorable outcome, yet if one can explain "disassociation" naturally by some extraneous complicating factor peculiar to the individual or introduced into the psychosis, then it is not necessary to suppose a schizophrenic mechanism and the prognosis is correspondingly better.

CASE 17.—Ruth F., age 28, native born and the wife of a naval officer. The father was bright and capable but alcoholic and died of "paralysis" at 48. Mother was "nervous." The patient was a precocious baby and later stood high in her classes in school and college. She was affectionate, social and popular. Less auspicious were "nervousness," sensitiveness, and a pronounced tendency to worry about trifles which led to more or less frequent weeping spells.

Her own birth was difficult and instrumental. She had the usual diseases of childhood and in early adult life typhoid and later pneumonia. All her life she was constipated. While never robust there was at least average health.

The precipitating situation was important and occupied a period of about five years. After her marriage at 23 she lived in worried anticipation of the order which would transfer her husband to sea duty and enforce separation. At 24 a child was born in difficult labor which inaugurated ill health—neuralgia and headaches. Less than a year later her mother died suddenly. Next, her earlier forebodings and fears were realized and the husband was ordered to Haiti while the wife was left alone for a period of 11 months. When she rejoined him a few months before the psychosis appeared, affairs in Haiti were in an uncertain and critical state. Rumors of native uprisings were the one topic of conversation and interest. A street fight occurred near the house in which the patient lived—shots were heard and two marines were wounded. One day, the patient discovered a tarantula in a bed-room closet and a snake in the dining room. It is possible that one may see a reflection of this series of emotional shocks in two coincidental physical phenomena—menstrual irregularity with dysmenorrhea and a 15-lb. weight loss.

The onset was acute. She became listless and seclusive; uninterested in the baby and indifferent concerning her own appearance. There was a paranoid delusional trend—her husband was unfaithful, he was to be court-martialed, the servants were poisoning the food, the entire white population of the island was to be killed at sunset. She remarked that she was not able to cry and to observers she seemed apathetic.

The psychosis had a seven months course. During the first few weeks there was practically a benign (?) stupor reaction with affectlessness, passivity or stiffness and tension and a suspension (as far as could be determined) of intellectual functioning. There was catalepsy, mutism, retention of salvia, and urine, food was retained in the mouth and then expectorated. There was masturbation and untidiness. Occasionally she smiled in a silly manner or sang a few words of a song. During the remainder of the psychosis (a period of more than six months) the patient gave repeated evidence of contact with the environment and even alertness. She looked about her or at magazines and books, did embroidery and crocheting, understood questions and obeyed commands, gave signs of promptly recognizing visitors including a relative whom she had not seen for a long time, wrote to her husband, etc. The notes refer to her brightness and attentiveness. Nevertheless, she continued almost absolutely mute, was still more or less untidy and resistive and now and then impulsively struck at the nurses. Her expression was either blank or there was presumably inappropriate smiling.

There were tremors of the hands and tongue, vaso-motor instability, headache, a two weeks' fever averaging under 100° F. and a decline in weight from 94 to 74 lbs. during the first five weeks of her hospital residence.

The improvement was rapid and amounted to recovery in about ten days. An eye refraction put an end to the headaches which had persisted into convalescence. The patient has remained well for almost seven years.

DISCUSSION.

During the early stages of the psychosis the outlook seemed favorable and it was only later that a suspicion of a schizophrenic process arose. While it was never a clear case, yet the few signs of affective life seemed to lag, were apparently diminished and inappropriate and certain exhibitions of motor activity gave the impression of absence of any environmental objective. Undoubtedly the long period of silence in the face of unmistakable proof of consideration of the appreciation of the surroundings contributed to the notion of "disassociation" and imparted a somewhat sinister aspect to the clinical picture.

In seeking for prognostically influencing factors in this case we at once have our attention attracted to the wealth of critical emotions induced by the precipitating situation. There was an intermingling of worry, grief, and apprehension. With the reserve definitely less and by the long period of strain during which the first two feelings held sway one might have anticipated an unusually severe response to the strong fear state which was called forth by sharp environmental stimuli. How dominating was this feeling

is suggested not only by the fact that it was carried over into the first psychotic manifestation but also by its probable responsibility for at least a portion of the somatic symptoms (menstrual disturbance). This is not the place to recapitulate the contributions of experimental physiology concerning the effect of moving affective trends on the body principally through the agency of the endocrines, but it is easy for instance, to believe with Crile¹³ that "we fear not in our hearts alone, not in our brains alone, not in our viscera alone—fear influences every organ and tissue."

Our clinical methods of passing judgment on the objective evidence of underlying emotions are, of course, incomplete and inadequate and since in many instances we are obliged to use the results of simple observation as diagnostic guides we are apt to be led into prognostic errors. The problem of determining in a given case the quality and quantity of a sthenic emotion and when and to what degree it is stimulating or inhibitory in its somatic effects is tremendously difficult not only on account of its intrinsically complicated nature but also because of the relatively greater differentiation and individualization of human beings. The very unsatisfactory condition of our knowledge should make us feel that when a psychosis is immediately preceded by well-defined, powerful and obviously deleterious emotional shocks, our judgment should be deferred and not be unduly pessimistic even if the actual content of the psychosis seems unpromising.

CASE 18.—Freda K., single, 33 years old, born in Germany, emigrating to the United States in her seventeenth year. Her maternal grandfather deserted his wife. The patient's father was "rough and unkind."

She was an efficient cook, had an attractive personality, and was quiet, cheerful, contented, somewhat reserved, conscientious, and a hard worker. While not in any way asocial, her diversions were chiefly confined to reading, sewing and walking. There was a serious "love affair" at 23, but the man "attempted to insult her and although she still cared for him she gave up all thought of marrying him. She has had many friends since then but never cared for any of them as she did for him."

It is said by the patient's friends that the cause of the psychosis was worry about the interned German sailors. She visited them at the Navy Yard and sent one of them (for whom she had possibly conceived a sentimental attachment) gifts. More concrete is the fact that there were two brothers in Germany; one in an ammunition factory and the other in the trenches on the Russian front. Savings, the result of much self-denial, were faithfully dispatched abroad. A remote circumstance was an attack of enteric fever at 31 which had as a sequel slight impairment of the heart.

As far as could be determined the onset was exceedingly abrupt. "She tells a long rambling story regarding the injustice of their detention (interned German sailors) and feels that the United States is wrong in sending munitions of war to England and other allied countries. She says that she is directed by God to bring comfort and relief to the interned sailors. Interspersed with delusions of this type are a number of ideas touching on sexual matters, semi-persecutory in type. She believes that her honor has been attacked and that she must make everything clear before the world." Finally, some of these views were set forth in a lengthy psychotic letter to the President.

The psychosis was concluded in about two months. It had two outstanding features. In the first place, when divested of certain psychotic exaggerations, there remained a body of production which constituted a life-like reflection of the propaganda which was carried on in the German-American press and through other agencies and it represented even more accurately the type of prevailing opinion and the principle subject of conversation among a certain percentage of the German speaking population during the troubrous times which preceded our entrance into the World War. The munition question, mail censorship, the threat of Ireland to Britain, the menace of Mexico, the leaning of the United States to the side of the Allied cause, etc., were repeatedly emphasized by the patient, so that even if her antecedents had been unknown it would have been an easy matter to name them and to deduce the attitude and condition of her associates. Considering the psychosis from the standpoint of its content, this was the foundation upon which was erected a rapidly evolved collection of grandiose paranoid delusions colored and embellished by direful prophecies supported by Biblical quotations. The patient heard the voice of God, she was His tool by means of which He would accomplish great things for her country. She was to appear before Kings, the end of the world was in sight, then the stars were going to fall and the sun be turned into blood. At the same time she was persecuted even "as Christ had been persecuted." There was "dope" in the food. Later on the symptomatology became somewhat complicated by additional delusional elements. Her name would have to be cleared, her honor restored, her employer's sister was at the bottom of the plot. The scope of the divine mission increased and now included the reformation of mental hospitals particularly the one in which intrigue had placed her. She actually refused a proposed opportunity to leave until "forty days and nights" had elapsed. The delusions could scarcely be designated as closely systematized yet to a certain extent they hung together fairly well. Her consciousness was not at all disturbed. She was clear, oriented, and her memory was intact. While not lacking in affective reaction, the response was not thorough and complete and the patient was almost too cooperative. There was often seclusiveness.

From accounts received the recovery was almost as sudden as the onset. The patient returned to her work, and married two years after leaving the hospital. She remained well for four years but died from septicemia following childbirth.

DISCUSSION.

A paranoid psychosis at the age of 33 or thereabouts is apt to be classed in the dementia precox group. An affective psychosis, of course may have and frequently does have a paranoid trend but usually the unmistakable signs of a more definite emotional reaction break through and come to the surface from time to time. Furthermore, with the amount of delusional formation which existed in this instance, the stability of the consciousness is likely to be threatened and contact with environment is less secure.

The psychosis was of the "situation" type. The patient was in an alien country, which was on the verge of entering the war and she would then be classed as an alien enemy. She was separated from her family and two of her brothers had already been drawn into the conflict. Her friends were similarly placed and the social circle in which she moved was vitally interested in the daily turn of the critical events of the time. Undoubtedly her mind was inflamed by the heated atmosphere of conjecture, doubt, fear and hate until she was no longer able to discriminate between true and false values. From such a state of mind to actual insanity was not a long step. Naturally there remains an "X" quantity to be supplied in the interpretation—an unknown factor—but probably it concerns the obscure question of the development of mental disease itself, rather than the particular form in which it appeared. The issue is one of prognosis and it is suggested that the somewhat unfavorable symptomatology, at least, to some extent may be explained by the fact that it was accidentally shaped by material directly accumulated from the environment of the immediate pre-psychotic life.

CASE 19.—Esther H., a married woman, 25 years old and born in this country of Russian Jewish parentage. She was the second of nine children, all of them being normal and healthy with the exception of the youngest who is mentally deficient. The family record is clear of nervous, mental or constitutional diseases.

In disposition the patient was social, fond of dancing and outdoor life. As personality liabilities there were sensitiveness, quick-temper and a tendency to be quarrelsome. It is said that marriage improved her make-up, she became more amiable and contented and was a good housekeeper. Was always in excellent general health.

The patient became pregnant during the first year of married life and went into labor early in January, 1916. The "twilight sleep" method was utilized and apparently there were no immediate complications.

On the eleventh day following confinement, outspoken mental symptoms appeared abruptly. "Something" which started in the fingers "kept going around in the head." There was considerable motor restlessness and talkativeness. The nurse at the hospital had not cared properly for her baby, which was a "fresh-air" baby; she had been forced to nurse other infants. Often she heard the crying of babies. There was resistiveness and vague apprehension. She would cling desperately to the banister and had to be forcefully removed. Insisted that someone was hiding behind the clothes tree. Once she ran to the corner drug store and told the clerk that she was dying.

The psychosis cleared up in four months but since the patient was under our observation for only one-half of this time a chronological description may be given advantageously. At the Bellevue Hospital where she remained only 24 hours the motor excitement was so marked that it was necessary to employ restraint. During one month at the Manhattan State Hospital there was restlessness, confused perplexity, probable reaction to hallucinosis and later the appearance of apathy. Here the patient was described as "reduced physically"; there was no fever but the urine contained both albumin and pus. The final hospital residence of two months, in the main, was not symptomatically encouraging. There were confusion, disorientation, mutism, mannerisms, stiff attitudes, catalepsy, cerea, stubbornness, resistiveness and simple hallucinations ("flash lights—electric—all around"). The affect at first alive and at least partially in keeping (crying, retardation, bewildered-apprehension) with the psychotic content seemed to dwindle and approach apathy. Along with the emotional diminution there was physical improvement. The only positive somatic findings were a low blood pressure S-96; D-64 and pustular acne.

The patient left the hospital only slightly better but soon after accomplished a recovery and has remained well for almost seven years.

DISCUSSION.

The objective evidence which at first bespoke a toxic-exhaustive state became less and less trustworthy in the further unfolding of the psychosis until dementia precox appeared as the leading diagnostic possibility. It is true that the sensorium was far from clear and that the catatonic array of symptoms is not necessarily peculiar to schizophrenia but the feeling tone instead of becoming more definite was progressively more uncertain and disharmonious. The fact that the mental attack followed closely on the heels of childbirth is of little prognostic significance. A recount of the psychoses occurring in sequence to labor show that every variety has been encountered—organic as well as functional, malignant as well as benign. The employment of scopolamine for induction of "twilight sleep" introduces a somewhat unusual factor in the pre-

cipitating situation. It is, of course, highly problematical, whether it alone could appreciably modify the clinical picture but, at least it should be mentioned as an agent which may have been influential in some degree. Its physiological action is not clearly understood and in a given case its effect is not predictable. "It quiets the cerebrum and produces deep sleep in certain class of patients. In the lower animals or in man it may cause sleep or wild delirium."¹⁸

CASE 20.—Bridget O. is an Irish-American Catholic girl, 20 years old, who had a parochial school education and was a salesgirl in a shoe store. She is one of five children. The father died of "stone-cutters' tuberculosis" and at the time of the onset of the psychosis the mother was in a public hospital suffering from a "depression." The patient was social, good-natured and popular. The ordinary diseases of childhood were not important but acute articular rheumatism at 15 in all likelihood produced permanent heart damage.

As a circumstance which may have favored the development of the psychosis was worry and grief over the mother's mental illness. It should also be noted that the first menstrual difficulty which the patient ever experienced was associated with the period immediately preceding the mental disease, menses being delayed and painful.

The onset was abrupt. An outbreak of vocal activity which was hard to follow since the ideational elements seemed wholly detached from each other—the mother was dead, the patient herself was to be married, a stranger was trying to dope her and carry her away. She was a single day at a general hospital and had to be removed because she was too "noisy." During a stay of 18 days in the municipal psychopathic hospital she was "noisy, incoherent, disoriented, combative, silly," and was diagnosed dementia precox. It became necessary to remove her to the medical wards on account of threatened collapse. Under our observation for six weeks she gave an almost classical portrayal of catatonic excitement. The patient was noisy, screamed, was resistive, struck, kicked, and bit anyone who approached her, broke glass, threw herself on the floor, knocked her head against the wall and was hopelessly untidy. There was also mutism, and well-developed negativism. Grimacing and mannerisms were displayed. Complicated fixed postures were assumed and long maintained; for instance, the left leg was extended at full length, with the right bent at the knee and crossed posteriorly at right angles. At the same time the left hand was held over the occiput and the right upward with extended palm. Both the expression of thought and of affect were widely separated from the behaviour and from each other. The former was wholly incomprehensible and uninfluenced by questioning or external stimuli. It was disassociated, profane and occasionally neologistic. The following production which was shouted without any evidence in facies, body attitude or tone of voice of any feeling is rather typical—"pick out my eyes—go kill me—nail me to the cross—you are brutes—that's it, cut my head off—I must die—you for the electric

chair—you are one the gang—the last for the electric chair—you are going to hell—there you stand looking at me—I am going to die." Usually, however, there was less connectivity—"just blue—Vermont—not too many cakes either." Manifestation of emotional stirring was lacking, there was only silly smiling or apathy. The patient was scarcely accessible enough to permit of any valid judgment concerning consciousness. It could be determined that memory was not interfered with. Probably there was partial disorientation for time and person, the latter perhaps, related to the fragmentary paranoid delusions. There was hallucinosis "death bells"—"shadows" of "her own ghost" and once a reference to a "gas" odor.

It was somewhat difficult to approach the patient for physical examinations, but from information gathered from time to time a fairly adequate estimate was obtained. She looked anemic and was poorly developed. There was a loud mitral systolic murmur. A broken down cervical gland discharged almost continually and it may have been tubercular since the lung findings were suspicious and there was a lymphocytosis of 38 per cent. An eosinophilia of 5.6 per cent was noted. A maculo-papular eruption gave a culture of staphylococci—albus and aureus. Blood pressure: systolic 108, diastolic 70. A dozen thermometer readings failed to reveal fever.

The patient recovered exactly five months after the onset of the psychosis and as far as we are able to determine has remained normal and well for seven years.

DISCUSSION.

In spite of the recovery, the unanimous staff diagnosis of catatonic dementia precox was justified according to the canons of strict clinical psychiatry. It is obvious, however, that the somatic factor was underrated. The patient certainly had heart disease and was depleted and possibly had phthisis and other infection. Catatonic reaction types to organic disease have often been observed¹⁴ and this possibility is of considerable prognostic importance.

CASE 21.—Lena P., 19 years old, unmarried and born in America of German parentage. The family history which is traceable for two generations is clear of nervous or mental abnormality.

The patient was one of five children. After completing the grammar grades at 14, she progressed from a job as an errand girl to a position as telephone operator in which work she was considered rapid and efficient. Was always quiet, domestically inclined, and with a very narrow range of interests. Never had any beaux in girlhood and even at 19 only a few girl friends and but a single male admirer.

There is no record of antecedent somatic disease, with the exception of vague stomach trouble several months previous when she was described as a bit excitable and irritable.

As far as could be determined the precipitating circumstance consisted of a marriage proposal which she received on Christmas Eve, 1919, from her

only male friend, a neighbor and soldier sweetheart recently returned from "overseas" where he had lost his leg in action.

The transition to unreality was acute. On Christmas night she became restless, tense and slept very little. This continued for four days and reached its climax in "mixed-up" conversation and an apparent toxic-delirium. There was vague, rambling, incomplete self-accusation and frequent reference to "wooden legs."

The psychosis lasted only four months. Its most persistent and dominant symptomatic expression was catatonia. As a muscle phenomenon it came to the surface in the form of catalepsy and cerea which was on several occasions interrupted by clonic convulsive episodes with paroxysmal trembling and rapid narrow oscillations of the limbs; in the behaviour field it was manifested by bizarre and seemingly objectless motor activity, open masturbation, assaultiveness, resistiveness, screaming, refusal of food, mutism, untidiness and suggestibility with prolonged echolalia. There was thought disassociation. Self-accusation was prominent throughout. ("I'm black at heart"—"a black dog"—"I will have to pay"—"cannot even ask forgiveness") but accompanying depression or, indeed, any well-defined feeling tone was not clinically evident. There was auditory and a suggestion of visual, olfactory, and gustatory hallucinosis. In spite of the toxic aspects of the psychosis, whenever contact could be secured, consciousness, orientation and environmental comprehension were practically intact.

As physical intoxication signs, there were low fever, rapid pulse, and overacting heart, teeth sordes, coated tongue, dry mucous membranes and foul breath. Urine negative but for a concentrated specific gravity of 1030. A polycythemia of 5,364,000 red cells and a leukocytosis of 20,500 (75 per cent neutrophilic) completed the picture.

The recovery was rapid and somewhat startling. A week after being removed from the hospital "against advice" she seemed perfectly normal in every respect and has remained well for almost four years. She married in 1920. It should be noted that the weight gain amounted to 47 lbs. within the period of six months immediately following the mental illness.

DISCUSSION.

Many of the premises which are considered more or less essential for the conclusion dementia precox existed in this case. The catatonia in itself, of course, is never conclusive, but when it is an element of a syndrome whose other components are disassociation, hallucinosis and affective disproportion with a relatively undisturbed sensorium, then the diagnostic landmarks would seem to be fairly clear.

Naturally, both a toxic-exhaustive process and manic-depressive have to be kept in mind. In favor of the former were rather dis-

tinctive physical marks of toxicity but the mental parallels (confusion or at least some degree of clouding) were lacking. For the latter, there was a single symptom, self-accusation, which in the first place is not the exclusive property of the emotional reactions²⁵ and in the second is usually supported at least in some phase of the psychosis, by appropriate depression. Hysteria both from the standpoint of the precipitating situation and symptomatology proper (with the exception of the onset and first stage) is a more easily defended possibility and is the second choice after schizophrenia.

It is difficult to find in the pre-psychotic life history of this patient any adequate reason for the particular complexion of the psychosis. It is undoubtedly true that the culmination of her only romance might readily have given a too quiet, sexually unsophisticated personality more material than it could successfully assimilate mentally, but this concerns the genesis of the mental attack and not its distinctive coloring. Again, by resorting to symbolic formulae and interpretations of the unconscious, one might uncover sex repressions and conflicts but in a diagnostic-prognostic sense these would have, at most, a universal rather than a personal application and would scarcely be in keeping with a clinical study which is attempting to utilize merely known and individual historical facts. One of us was fortunate enough to examine the patient a few days after the onset. The signs of somatic toxicity were striking and unmistakable. Divorced from its mental aspects the picture was not unlike enteric fever or some other serious infection. It is a well authenticated observation that catatonia may occur in a host of conditions among which acute infections are well to the fore. Catatonia has been described in toxic and exhaustive states, typhoid and other acute infections, as a post-operative sequel, in renal insufficiency, organic brain disease, abscess and tumor, cerebellar hemi-atrophy, head injuries, paresis, epilepsy, hysteria, manic-depressive and other so-called functional psychoses by Steinheil, Bonhoeffer, Bernheim, Regis et Lalanne, Kottgen, Schmidt, Schaffer, Anton, V. Muralt, Seglas, Nacke, Ideler, Kirby, Taft, etc. Is it not conceivable at least, that in this patient an aggravated but essentially benign psychosis or neurosis received its catatonic-dementia-precox-like characteristics from an associated obscure toxic factor?

CASE 22.—Annie J. was 19 years old, one of a family of nine, born in this country of Irish-American parents. One maternal aunt had chorea and has always been "nervous" but otherwise the record is free of mental or nervous taint.

The patient had the advantage of a High School education and became an efficient stenographer. With the exception of a tendency to be excitable, her personal characteristics were helpful; vivacious, jolly, humorous, kind-hearted, generous, thorough and conscientious. She had always been in good physical health.

Although normally interested in men and society, the patient had even during her High School years decided to enter a Catholic sisterhood and several months before the onset of the psychosis had come to the point of fixing the date. Whether or not an unusually severe mental conflict was precipitated cannot be definitely ascertained. Perhaps it is suggested by certain elements of the psychotic content. Six weeks before the breakdown she was in the employ of a lawyer who was disagreeable and difficult to satisfy. Coincidentally came the first interruption of her former excellent health. There was nausea, loss of weight, marked fatigue and cessation of the menses. Immediately preceding the initial mental symptoms she went to a convent to take part in a religious retreat.

Suddenly crying spells and insomnia appeared. She mistook identities, spoke of her father as "dead," thought that people were entering the house at night and asked the meaning of shadows which she saw on the wall. At night she was restless and several times tried to jump out of the window.

The psychosis had a duration of about five months. Perhaps the delusional—hallucinatory features were most prominent. There was "dope" in the food, the medicine and the bath water were poisoned, she could see "black specks" in the egg-nog, had been lured into the house and doped, electricity was both heard and felt and it "drew" her head, there were "powers" from the "underworld," shadows were noted in the darkness, she noticed movements of her own hands and complained that "everybody moved everybody else's hand," of again "this place is hell." "Too many signals—when you moved in that way he passed something to you—am I right or am I wrong?" There was possibly a mild degree of confusion with some defect in the orientation but not clearly enough to account for the hallucinosis and delusional trend, if one had in mind an ordinary delirious process. The general memory and knowledge of current events were not markedly disorganized. The "motor behaviour" rather tended to show under-activity. There was a certain amount of resistiveness to the attentions of the nurses and occasionally destructiveness. The patient's appearance was very untidy. Often the prayer attitude was assumed, either the usual one or an exaggerated modification such as kneeling on one knee with an extended arm or lying on the floor with arms outstretched (cross). The productions concerned themselves with the paranoid ideation. Sometimes there were misidentifications; for instance, the physician was suspected of being a priest. Once the patient complained that "her thoughts did not come as fast as formerly" and occasionally there seemed to be some evi-

dence of retardation. Objectively estimated the affect fell far short of the remainder of the psychosis. She smiled when questioned about her persecutors and frequently seemed without underlying appropriate feeling. However, she prayed to "clear away" her sins, said "don't call me Mary, I am not worthy of that name. I have tried to be like her but haven't succeeded very well" (self-accusation).

There was an eleven-day fever reaching 101.4° F. once, but averaging less than 100° F. There was nausea, headache, flushed face, coated tongue, and moderately injected throat. Leukocytes increased to 10,500. The weight dropped from 119 to 111 but subsequently regained its original point.

The improvement was rapid and recovery included insight. The mother feels that a material factor was her plain statement to the patient that if she did not get well soon, she would have to go to a public hospital. Mental soundness has been held for more than two years and was put to the test of nursing her father through an attack of uremic poisoning. During the first five months she gained 27 lbs. Whether or not the idea of entering the convent was abandoned is not known. When last interviewed she planned to do clerical work.

DISCUSSION.

The diagnostic possibilities seemed to lie somewhere between dementia precox, an affective psychosis and mental disease of toxic origin. Probably it was as much the absence of the positive criteria of the latter two, as the available schizophrenic evidence which determined the final opinion. However, that this was not entirely lacking is shown by poverty of emotional concomitants and the characteristic nature of the delusions with hallucinosis.

In reviewing prognostic indications one may not ignore the somatic phenomena of the psychosis even though they did not give a clue definite enough to enable one to name a concrete infection and though it could not be asserted conclusively from the psychotic manifestations that there was basic exhaustion. So-called infective exhaustion is scarcely ever symptomatically a clear-cut entity unless it be in the few instances where it is obviously a part or a direct sequel of an established infection or other disease. These are the classical examples but there must be a great number of gradations in severity producing either independent psychiatric pictures or added syndromes, which give the impression of chronicity or act as complicating additions to an emotional reaction, modifying behaviour and affective life (possibly as a result of a mild disturbance of consciousness) and making it possible for them to come to the surface in an unusual and unfavorable form. It is

of course recognized that similar conditions may obtain at certain stages of dementia precox, but nevertheless, whenever there is the slightest reason for doubt, the occurrence of signs of somatic disturbance should make for a certain amount of prognostic optimism.

CASE 23.—Delia T., age 25, unmarried, stenographer, native born and one of six siblings belonging to the third American generation. The remote ancestry was of sound Irish stock and entirely free of nervous and mental taint, both in its descendent and collateral branches.

The patient's personality consisted largely of assets. As a child she was happy, lively, contented, sociable. Did not care for dancing. Graduated from High School at the head of her class. It is said that she never quarreled and was superior to the remainder of the family in poise and judgment. Perhaps against this we should reckon the statement that she was a "perfectly normal child" restrained in conduct and never demonstrative.

The early pre-psychotic health was remarkably good.

The only circumstance which seems to stand in intimate relationship with the onset of the psychosis was the sudden accidental death of the mother in a surface car smash up. (Perhaps some account should be taken of the mother's character. She had unusual force and ability and displayed remarkable judgment in the upbringing of her children. It is evident from the history that she was the pivot around which a well-ordered and devoted family life revolved.) During the period of strain following, it was the patient who took charge of the situation and sustained the other members of the family. There is little doubt that she overdid and became fatigued. At the end of two weeks and without preliminary symptoms, she suddenly announced at the supper table that she could not eat, that she was going to die of heart trouble, asked for the family doctor and calmly went to the parlor to await his arrival.

At a general hospital where she remained for several weeks there was marked insomnia, tremendous ideational productivity which at times gave an impression of flight but as often was seemingly barren of either external or internal associations and an accompaniment of considerable motor activity. There was persistent refusal of food and medicine with the expressed belief that they were poisoned. There was some evidence of superficial emotional reaction and instability (laughing and crying) but often apparent affectlessness or at least a disharmony between thought (when it could be objectively weighed) action and feeling.

The psychosis lasted about five months. For the greater portion of this time its manifestations were difficult of interpretation and the prognostic indications were not promising. There was impulsiveness, unprovoked assaultiveness, resistiveness, mutism, staring, retention of salvia and catatonic rigidity. Fixed and uncomfortable attitudes, particularly the knee-chest posture, were assumed and sustained. At times a panicky confusion seemed to govern a discharge of activity—tearing off the clothing, letting

down the hair, and shaking or wetting it (once snatching a pair of scissors and cutting it). These and similar acts were in response to a fear of crawling vermin. There occurred illusory misidentifications, "sizzling noises in the ears," a vague reference to voices and imaginary insects were picked from the surface of the body. As symptomatic representatives of the ideational function there were irrelevancy, incoherence, disassociation, repetition of nonsense syllables and now and again a mild example of rhyming flight. The clinical judgment of the affect rated it as diminished and inconsistent. Objectively aimless smiling and a rare display of anger were noted. There was episodic clouding of the consciousness with clear intervals. Once the patient inquired perplexedly, "Who am I?" Partial stupor reaction was interrupted by outbreaks of perverted energy during which the night dress, sheets, pillow slips, covers, curtains, etc., were destroyed, or wadded together and thrown aside or used as receptacles for large accumulations of saliva.

Somatically there was a low febrile reaction for several weeks, constipation, acne vulgaris, right ovarian tenderness, a red blood cell polycythemia (5,010,000) and a leukocytosis of 10,400 (63 per cent neutrophilic). The weight had dropped to 91 lbs.

The measurable steps toward recovery were taken in a two weeks period of time. At first residual evasiveness masked insight but later a satisfactory appreciation was developed. Normality has been held for eight months and gives promise of permanency. Incidentally a weight gain of 20 lbs. was accomplished in four months.

DISCUSSION.

At least three diagnoses may be considered, namely, dementia precox, an infective-exhaustive type, and manic depressive, but the manifestations and mechanism of symptoms seemed to belong preponderantly to the first. On the surface at least, there were unexplainable gaps and inconsistencies between thought content, behaviour and affect. The partial stuporous state was not convincingly benign. It is true that there was apathy, negativism, and an intellectual disturbance but a discordant note was struck by the detached episodes of impulsively directed energy. In weighing the evidence in favor of mania, there must be a consideration of the stupor in the light of an absorbed manic state. Without being led into the mazes of a discussion of this little understood subdivision, one may still make note that the Kraepelinian triad (psychic-motor-emotional) is still a useful conception and that it permits of individual symptomatological plus and minus values which make mixed affective psychoses more understandable. Along this line, the tendency to rhyme and to flightiness, while not marked, did appear occasionally. Finally, the confusion, the pecu-

liar quality of the hallucinosis and perhaps, even (though somewhat more remotely) the ideational and motor phenomena are to be thought of in reference to a basic somatic disturbance. As is often the case, the physical criteria were not abundant. However, there was low fever, moderate leukocytosis and weight decline. In the precipitating situation the outstanding unit was deep mental shock (sudden death of mother) and the subsidiary factors (over-strain and fatigue) may have been the more determining because of deleterious emotional background. No great clinical gain would seem to accrue from the attempt to sharply demarcate so called infection-exhaustion syndromes from other better delimited psychoses, particularly the affective psychoses. It is not unlikely that this case may be illustrative of certain clinical combinations in which the presence of toxicity and pathological fatigue produce objective results which from the standpoint of the symptom-picture are difficult to interpret and apparently unfavorable, but, nevertheless, eventually prove to be prognostically benign.

CASE 24.—Evelyn I. is 18 years old, single, has had a grammar school education and is a telephone operator. Her parents and she were born in Maryland. The paternal grandfather died of Bright's disease at 58. Father died of "muscular paralysis" at the age of 33. Maternal great aunt had tuberculosis. Mother is querulous, circumstantial and a "nagger." An older sister has always been timid and excitable and had a frank mental breakdown at 14, characterized by immoderate laughing and crying, auditory hallucinosis and delusion formation. She recovered after three months in a State Hospital and has remained normal for five years.

There were no marked deficiencies in the make-up of our patient. She was bright, cheerful, good natured, social, considerate and thoughtful. Was fond of dances, "movies" and swimming. In school she showed average ability and at her work manifested willingness and capability and was promoted rapidly. Neither the fact that she was born in difficult labor nor that she had had pertussis at one month, mild typhoid as six, varicella, parotitis and rubella at nine, had any ill effect on her general health in later life.

The psychosis was about nine months in the making. Precipitating were an engagement opposed by her mother to a man eight years her senior who had had a previous marital experience. There was illicit sexual intercourse and the fear of pregnancy, which was sharpened by sudden cessation of the menstrual function. There was a definite loss of physical reserve in some measure due to inability to meet the demands of a promotion to supervisor. Headaches, pain in the stomach and intense coldness of the extremities developed. After several fainting spells she voluntarily requested demotion to less strenuous duties. It is possible but has not been

absolutely confirmed that these premonitory signs of exhaustion may have been contributed to by the taking of various emmenagogues.

The onset was gradual. During a five months' period there was a reversal of her usual cheerful disposition. She became irritable, disagreeable and selfish. There was a constantly increasing tendency to be careless in dress and deportment. Often she relapsed into states of relative inactivity and now and then "stared" in a stupid, vacant manner. The next stage was obviously psychotic; motor excitement, exhilaration, laughing and screaming and appearing in the presence of male boarders clad only in a night dress. Rather abruptly there followed motor and vocal quietude, and loss of interest in self and surroundings. Then she seemed dazed, complained of a "cloudy feeling" in the head, "could not remember" but confessed her sexual lapses to her mother. Unwisely she was taken shopping for a wedding dress, was whimsical, but finally made a selection, only to discard it upon returning home with the remark that she would "never wear it." To remonstrances she responded by a suicidal attempt (illuminating gas). Later, upon somewhat similar provocation, she flew into a rage, "became rigid, clenched her hands, tore hair and clothing and gritted her teeth." At a general hospital she whispered "everyone is a sneak." Was afraid of the Catholic nuns and tried to leap out of the window.

The psychosis lasted about ten months, the latter half being under our observation. Nine days of mild confusion, partial disorientation, motor inhibition, thought retardation, possibly the delusional idea of poisoned food, and slight apprehensiveness, but otherwise no expression of emotional stirring, ushered in a deep stupor reaction which endured for four months. Its principal phenomena were mutism and an apparent suspension of intellectual functioning, motor inertia interrupted by episodes of pitching from one side of the bed to the other or struggling at tube feeding, rigidity and negativism or a reversal to catalepsy, anaesthesia to needle thrusts, infrequent winking but retained corneal response, uncontrolled voiding and defecation, attitudes of fetal-like flexion and affectlessness, although occasionally a few tears appeared in the eyes. Early in the stupor the accidental aspiration of fluid (during artificial feeding) either into the pharynx or as suggested by a consultant, into an oesophageal diverticulum, stimulated the patient to ask for food. An anomalous feature of the stupor was repeated evidence of contact with reality. For instance, when attention was directed to the temporarily relaxed limbs they were immediately stiffened and again food permitted to remain in the room within reach was eaten surreptitiously by the patient. In this way she fed herself for three months. The disappearance of the stupor and the return to normality occupied only a very short time. For a few days there were vague signs of returning interest. She laughed to herself, smiled and nodded to her mother and whispered a few words. The following day she cleared entirely, spoke spontaneously and recognized the physicians and nurses by name. The patient's retrospective account likened the stupor to a dream or long sleep from which she could only uncertainly recall a few incidents.

Physical examination elicited these findings: hypertrophied tonsils, an inflamed discharging cervix, left salpingitis. The laboratory reported a leukocytosis of 14,400 (82 per cent neutrophilic) and the presence of many extra and intra cellular gram negative diplococci in the vaginal smear. The conjunctivæ which simultaneously became chemotic and inflamed were bacteriologically negative. For 18 days there was fever which twice during the pronounced stage of the stupor reached 101° F.

The patient remained well for seven months. She was relieved to learn that her engagement had been broken during the illness and at once started writing to boy friends.

DISCUSSION.

Great difficulty is encountered in attempting to label this psychosis in a satisfactory manner. The stupor, in particular, is an obstacle to diagnosis. Although it had many of the earmarks of a benign reaction, yet it was far from being true to form. For instance, the patient, when left alone repeatedly took and ate food which had been placed in her vicinity. This, in itself, is a complex act whose performance is an argument against any complete suspension of intellect or binding of motor functioning. As a sporadic manifestation it is not all inconsistent with malignant stupor of dementia precox. Further, not only this single aspect but the entire stupor reaction and perhaps the complete psychosis might be regarded as a profound major hysteria. Finally, the evidence of toxicity must not be left out of consideration. There was leukocytosis, fever and both gynecological and bacteriological evidence of cervical and possibly tubal infection. This was scarcely without some effect though many of the intrinsic features of the stupor and the rapidity of its clearing are against the idea of the disease process representing solely a toxic state. Since the stupor might have represented a schizophrenic reaction, but perhaps chiefly on account of the symptomatic deficiencies in respect to the conception of either an affective psychosis or a typical mental response to infection, dementia precox represented the majority opinion three months before recovery.

Apart from the correct designation of the psychosis which need not be of primary importance, it seems not unlikely that the available data were weighed too lightly in presuming that the prognosis was unfavorable. The precipitating cause (?) was certainly not inadequate. There was not only a more or less unsatisfactory engagement to marry and the considerable and prolonged emotional

strain of illicit sexual intercourse reaching its climax in a well-founded fear of illegitimate pregnancy but also a toxic-exhaustion factor. We have some reason to feel that dementia precox is somewhat less often a "situation" psychosis, *i. e.*, that is a *prompt* response to a concrete and serious pre-psychotic difficulty than are other forms of mental disease. This may be especially true when the preponderating elements of the "situation" are "psychic."¹⁰ Furthermore, it is probable that the toxic component was under-valued in this case. As has been suggested, neither definite nor obscure toxicity need necessarily produce an "all or nothing" kind of abnormal mental syndrome. It seems reasonable to assume that partial effects may result and what would have otherwise been frank symptomatology is complicated, rendered less obvious and perhaps made to appear prognostically unpromising.

CASE 25.—Grace K., a Pennsylvanian, native-born parents, 26 years old and a dressmaker by occupation. The family history is negative for nervous or mental disease. There are four normal and healthy brothers.

The patient is pictured as affectionate and unselfish, somewhat quiet and reserved but unusually happy and content with her work and station in life. It is said that she was rather inclined to be dictatorial. Her range of interests was limited. She was not particularly fond of amusements and rather indifferent toward men. She was a Roman Catholic and quite religious.

At 15 there was enteric fever but since then an uninterrupted record of good health.

The family believe that the mental disease resulted from inability to obtain work. At any rate, it is true that lack of employment was a source of continuous worry. During the three months preceding the psychosis, the record of good health was broken by the appearance of obstinate constipation and severe headaches.

The onset was gradual. In the beginning there was a personality alteration. Satisfaction with life gave way to discontent and contrariness. This was soon succeeded by loss of interest in self and surroundings, restlessness and perhaps mild depression. Soon the keynote of the psychosis was struck in a wealth of paranoid delusions of vivid hallucinosis. She was being watched, was to be electrocuted as a spy, there were dictophones, at night she was drugged, etc. The mood was variable and superficial with easy transition from tears to laughter.

The psychosis was completed in less than six months and was a repetition and elaboration of the initial symptoms. The more or less unsystematized delusional theme was well supported by hallucinosis. Her mind was "charged with electricity," she saw "a cross on the wall"—"something on the bed smells terrible," "cocaine," "someone is calling me, I have to answer," "they shake it on you," "I found them in my room one night"—

"that smells like lime in here" (sniffs) etc. While there was restlessness and resistiveness (during tube feeding) the motor accompaniments on the whole showed considerable disparity and were usually not at all in keeping with an ideational content which otherwise might have been at once interpreted as simply a delirium. There was no marked activity. Frequently stiff, awkward postures were assumed and there were exhibitions of nodding, bowing and the like which gave the impression of mannerisms. The delusions and sense falsifications were less often expressed spontaneously than in reply to questioning. Delays in answering bore the imprint of either blocking or perhaps undivided attention to hallucinatory stimulation rather than retardation especially since further queries were apt to be responded to promptly enough. The affect, in the main was contradictory. While apprehension did exist in some degree, more in evidence were weeping, smiling and laughing, unrelated or opposed to the productions which they accompanied.

The somatic findings were pyorrhea, coated tongue, defective motor coordination, fever for 24 days, averaging less than 100° F. and twice amounting to 102.5° F. but often dropping to the normal, and an overacting heart. During the first three months of the hospital stay the weight declined from 135 to 118 lbs., but during the final weeks of her illness and first stage of convalescence there was a gain of 32 lbs.

The patient has been well for seven years. The headaches never reappeared. She is successfully conducting a dressmaking establishment.

DISCUSSION.

The difficulties of differential diagnosis cannot be clearly encompassed in a brief written description. There was much in favor of a mental reaction to somatic infection but the dementia precox evidence seemed to weigh even more heavily. Many of the productions were often strikingly like the disassociated utterances of precox, especially as one could never be quite sure concerning the amount of sensorium clouding. The affective content showed wide divergence from the thought. For instance, the patient said "they have ruined my life" and at the same time smiled in a distinctly silly fashion. Such pleasurable interpretation of what is really unpleasant constitutes according to Hoch¹ typical "disassociation of affect" and is regarded by him as a cardinal schizophrenic symptom.

In this case from the standpoint of prognosis one comes by elimination to a consideration of a possible toxic factor. It is true that its manifestations were not prominent but nevertheless there were at least fever and a considerable decline in weight. The somatic element perhaps, gains some significance since although the imme-

diate prepsychotic period lacked a determining psychogenic factor, yet it did clearly mark the first break in more than a decade of satisfactory health. It is not altogether unreasonable to feel that sometimes psychiatrists go too far in their attempts to give physical signs a psychological explanation. It is plausible, that toxicity may produce individual reactions which may simulate full-blown psychoses. In the several epidemics of encephalitis, illustrations were available, in which the infection was expressed largely in terms of abortive and sometimes even fairly well developed psychotic syndromes while the neurological phenomena dropped into the background. Wherever the psychosis is doubtful in its characteristics the history and the clinical findings should be carefully scrutinized for signs of somatic response to some obscure infectious process and even if these signs are not altogether convincing, judgment should be postponed until their further evolutions is noted.

SUMMARY AND DISCUSSION.

RACE.—Seventeen of our patients may be classed as "Americans" (two of these will subsequently be referred to as of Pennsylvania German descent); two were Irish-Americans; two German-Americans; one German; one Italian; one born in this country of Russian Jewish parentage and one was a native born Russian Jewess. As has been previously pointed out in the discussion of this last case (Yetta B.) the influence of the racial factor is not altogether negligible. All authorities emphasize the essential and basic differences between the Jew and the Christian. Myerson¹⁰ particularly calls attention to the strong individuality of the Jew but insists that this and other distinctive traits are due to the gradual narrowing of the sphere of activities enforced by the hostile attitude of society so that he developed an urban, sedentary and cerebral character at the expense of his body. The oft repeated assertion that seemingly malignant psychoses show a high recovery rate in the unassimilated Jew, if analyzed, may probably be reduced to the likelihood of clinical error which comes from our inability to gauge accurately habitual modes of reaction in an alien race, particularly when they are further complicated by a psychosis. In addition to the purely alien type, there are groups of individuals who have retained certain more or less distinguishing characteristics, even though they have lived in this country for many genera-

tions. This is perhaps true of that small fraction of Pennsylvania German stock which had remained isolated in rural communities and perhaps by inter-marriage and restriction of outside contact strengthened a common feeling and bond of self-sufficiency, distrust for the opinions of others and an inflexible opposition toward new customs. Two of the patients, Minnie G. and Lucy Y. were Pennsylvania German and it may be that in the latter one, the catatonic-like outbreaks were determined not only by a high degree of personal stubbornness but also by an accustomed racial and community reaction.

FAMILY HISTORY.—Close attention to the familial records reveals two instances in which mental disease in a parent seemingly influenced prognosis. The mother of Ellen R. and both the mother and sister of Elizabeth M. had dementia precox. When mental disease with schizophrenic markings occurred in the two patients, the *direct* influence of heredity was naturally the first thought, and its *indirect* effect in creating an unfavorable environment in which these patients lived during childhood when they were normally highly imitative and suggestible was not reckoned in predicting the outcome. Whatever may have been the nature of the psychosis from which they suffered, it should have been expected to show a schizophrenic coloring, since the material which they drew upon for its content came from close association with true examples of precox. In a third case, Eliza D., the mother and the sister as well as the patient were over-credulous, easily influenced and superstitious, so that the soil was prepared to receive the impressions which came from an ignorant charlatan at the onset of the illness. It is likely that these impressions later came to the surface as precox-like symptoms.

PERSONALITY.—Personality admittedly plays an important rôle in the dementia precox problem. Meyer made a constructive contribution to psychiatry when he emphasized the "shut-in" make-up in his conception of dementia precox. Other authorities^{19, 20, 21} have repeatedly dwelt on its frequency, so that the fundamental relationship between the personality which withdraws from socializations and schizophrenia is now well established. However, we may, perhaps, differentiate between what might be termed a constitutional "shut-in" type and one which is the artificial product of environment. The former develops in spite of normal or at

least average surroundings; the latter is a feasible defense against definitely inimical reality. Other things being equal, the first argues for an unfavorable prognosis; the second does not necessarily weight the balance against recovery. Two of the patients, Elizabeth M. and Minnie G., were described as seclusive. In one case (Elizabeth M.) the "seclusiveness" may be interpreted as a part of an attempt to lift herself above a sordid family level (since it did not extend in other directions) and in the other (Minnie G.) it was in a sense a logical method of preserving rather than abandoning personal integrity and social reality.

In three of the patients, Lucy Y., Edith X., and Margaret E., there was evidence of a dispositional characteristic which might be described best as stubbornness. It comprised briefly a marked opposition against the acceptance of contrariwise opinion and undesirable situations. In Lucy Y. it was probably an inherited or very early acquired trait, so that a physical reaction pattern had become ingrained and "even as a child she would stiffen herself, open her mouth and roll her eyes about if opposed in any way." In Edith X. it was clearly the result of a spoiling process in an only child and reached the point where anger appeared "in the face of the slightest opposition or interference." In childhood, Margaret E. was "markedly stubborn" and "hard to conquer." It is noteworthy that each of these individuals when confronted by concrete conditions to which perforce they had to bow (Edith X. and Margaret E. illegitimate pregnancies; Lucy Y. conflict with School Board) became psychotic and furthermore manifested symptomatically blind catatonic outbreaks against the environment. The thought that this "catatonia" may have been merely the pathological accentuation of prepsychotic "make-up" may be worth prognostic consideration.

In three cases, Mary S., Frances C. and Eliza D., the personality contained a greater or less degree of a tendency toward mysticism. In the first an unusually long retention of the "pretend stage" of childhood merged in the early 'teens into a concentrated interest in Hindu occultism. The second was a firm believer in telepathy and the third was grossly superstitious and readily influenced. In the psychoses which occurred, apart from other phenomena, the somewhat vague paranoid delusional formation was of the kind which seems to draw its substance from a background of confirmed and

unusually pronounced unreality. There is perhaps a less serious prognostic implication in the notion that the precox-like direction which the mental disease took was, in some degree, merely the out-growth of personal habits of belief and a disintegration of self was not involved in the process.

Similarly, neither the sensitive-paranoid "make-up" of Genevieve L., the paranoid attitude of Sylvia Q., both of long duration, nor the distrust and suspicion of Maltilda N., which were added to already existing sensitiveness and timidity by an unsatisfactory marriage, can be said to have undergone deterioration. They provided in each case a foundation in which was erected not illogically the structure of an acute paranoid psychosis.

In Miriam V. unusual conditions both somatic and psychogenic were imposed on a timorous and apprehensive personality and in Catherine A. the mental illness furnished an outlet and temporary satisfaction for a sense of inferiority.

In reviewing a group of acute psychoses with symptoms resembling dementia precox, Hoch² likewise asserts that the personality sometimes places the psychotic symptoms in an unfavorable light. He says "where the history shows difficulties in making adjustments, eccentricities, peculiarities in conduct, suspiciousness and other oddities in make-up, these idiosyncrasies are naturally carried into the psychosis when it appears. Thus the personal history may strongly suggest dementia precox, the delusional ideas and reactions may also be suggestive of a deteriorating type of disorder and yet we may be dealing with a pretty pure type of acute psychosis, such as a simple depression, into which the slightly odd personality has obtruded itself and has been prominent enough to confuse the picture."

PHYSICAL PRE-PSYCHOTIC HISTORY.—In only one case, that of Celia Z., did a pre-psychotic somatic factor more or less directly influence the prognosis. The patient had early acquired deafness and was mute and it seems likely that the sensory deficits with the consequent inability to express emotional life and react to environmental contacts according to ordinary standards, gave an aspect of malignancy to the psychosis.

THE PRECIPITATING SITUATION.—Precipitating situation is perhaps a loose term. It may erroneously be regarded as having chiefly a chronological bearing and as being composed only of the detri-

mental somatic and psychogenic conditions which immediately preceded the psychosis. However, to students of what may be termed analytic psychiatry it has a somewhat broader meaning. They are inclined to think of mental disease in terms of destroyed resistance, usually the end result of a series of destructive influences, which may be hereditary, environmental, psychogenic, or physical, sometimes in pure culture but more often in various combinations. It is these factors, alone or combined, which constitute the precipitating situation and though they may be acutely developed, they are still more apt to be insidious and gradually accumulated.

It is, of course, recognized that resistance to mental disease is an extremely variable quantity and at times even the most insignificant thrust suffices to upset the equilibrium of an individual, who then might be designated constitutionally unstable. A valid basis of comparison concerning relative severity of precipitating situations is difficult to find on account of individual dissimilarity of viewpoint, but in a general way there is enough agreement to distinguish, at least, between intrinsically significant and trivial pre-psychotic circumstances. While, of course, we cannot eliminate our own personal bias, we believe that our judgment would be substantiated by an average opinion, when we say that in view of careful perusal of the histories of the 25 patients, 14 or 66 per cent were subjected to situations which were adequate for the precipitation of the psychoses. It should be mentioned that this statement does not exclude an hypothetical specific etiological agent, which psychiatry, in the majority of its problems, thus far, has failed to discover. It is interesting to note that the percentage of significant situations was quite high in our series of recoverable "dementia precox" reactions. One of us found in 100 dementia precox cases, only 20 per cent in which there were significant or important circumstances favoring the occurrence of the psychosis.²³

However, we are principally concerned with the attempt to trace a connection between the outstanding elements of the precipitating situation and some of the malignant-like features of the symptomatology. The patient, Edith X., for instance, who was but poorly equipped to meet the exigencies of hard reality, found herself illegitimately pregnant. Resort to criminal operation did not remove the need for secrecy and only complicated matters by the addition of certain sequelæ—notably septic infection. During the mental

illness, it was the silliness, grimacing, flippancy, evasiveness obviously superficial laughing and weeping, etc., which were construed as indications of underlying affectlessness, or at least of emotional inadequacy, and which gave point to the gloomy prognosis. On the other hand, these manifestations may have represented the pursuance of a childlike method of concealment and the apathy may have been more apparent than real.

In at least two patients, Ruth F. and Yetta B., the precipitating circumstances embraced a strong emotional stirring. The former, after an anticipatory period of worry and apprehension, had to face the sudden death of her mother, enforced separation from her husband and a number of incidents calculated to acutely raise the fear state to a dangerous height (uprising of natives in Haiti, discovery of snake and tarantula). There were associated and no doubt resultant physical phenomena—menstrual irregularity and weight loss. The latter patient (Yetta B.), possibly handicapped against the endurance of affective strain by her race, was subjected to constant worry and fear because her father, brothers and sisters were caught in the war zone of German occupation and she had had no word from them. During the apathetic (?) stage of the psychosis she lost 22 lbs. or almost one-fifth of her entire body weight. In Ruth F. among the psychotic symptoms which contributed in greater or less degree to the notion of malignancy, were seeming listlessness, indifference, stupor, catalepsy, mutism, and at first an active paranoid delusional trend; in Yetta B. were catalepsy, cerea, brief stuporous states and vague paranoid delusional formation. In neither instance were there any convincing signs of retained affectivity.

Since in clinical psychiatry prognostic inferences are often so dependent on an accurate estimate of the emotions, it is unfortunate that we are limited practically to crude observation for our judgment. In spite of the splendid advances of experimental physiology there are still many gaps to be filled and further, there is the great discrepancy which results from the effort to apply the knowledge gleaned from animal experimentation to human beings. However, without reviewing at any length the contributions of physiology, we know in a general way that an emotion is always translated into physical concomitants, that these may be roughly divided into stimulative and inhibitory, that not only the musculature but

every organ and cell of the body is involved in the process, that these somatic accompaniments may prolong the affective state and that the link connecting the psychic and the bodily phenomena is highly complex but probably has as an important element the several units of the endocrine apparatus.^{24, 25} The very incompleteness of our information should lead us to employ caution in pronouncing deterioration of affect, simply because there is some species of catatonia, exhibited, particularly when there is the history of unmistakable antecedent emotional stress. Hoch's²⁶ conception of benign stupor is the psychological portrayal of death. Although there must have been at some prodromal point considerable emotional life, the primary element of the stupor itself is absolute affectlessness and yet there is always a hopeful prognosis. To return to our two patients, it should be finally noted that, at least in Ruth F., the paranoid ideation was clearly drawn from the setting of the precipitating conditions.

Likewise in two other patients, Miriam V. and Freda K., a careful scrutiny of the precipitating circumstances might have provided somewhat better prognostic indications. They had paranoid delusions. In the case of the latter, their content was directly related to some of the component material of the predisposing factor (being an alien enemy) and in the former a chain of psychic and somatic insults (worry, fear, overwork, pregnancy, influenza) induced pathological fatigue which lessened inhibition, so that an accidental episode just before the onset of the attack (reading of luridly colored and fantastic detective stories) was carried into the psychosis bodily and furnished the text of the persecutory beliefs.

In one patient, Esther H., scopolamine was utilized to induce "twilight sleep" during labor. Whether this drug could have been instrumental in imparting a prognostically forbidding complexion to certain of the symptoms of the psychosis is questionable. Many authorities, including Hare,²⁷ assert that scopolamine is likely to produce an uncertain response. Obstetricians have largely abandoned its use and both De Lee²⁸ and Baer²⁹ have reported that it occasioned wild delirium and violence.

The situation which paved the way for a break from reality in the case of Catherine A. centered around the inability to compensate for a feeling of inferiority. Psychologically, the psychosis gave temporary and artificial relief. In it the psychotic method of express-

ing newly acquired power took the form of bizarre delusions, the ability to deleteriously influence the health of those about her largely through her own gross subjective sensations. This emphasized the impression of precox. In the light of the basic alignment between the personal feeling of inferiority and this particular phase of the symptomatology, the outlook might have been considered less grave.

In one patient, Edith X., the precipitating situation was corrected before the mental illness terminated. She was assured by the family that the man who was responsible for her illegitimate pregnancy was anxious to marry her and thus a future satisfactory social status was insured. The elements which contribute to recovery or chronicity in a given case are always immensely complicated, closely interwoven and difficult to unravel. A psychosis is after all the culmination of a life long reaction between an individual and environmental circumstances and there may be at hand unsuspected resources, recent or remote, innate or extraneous, which either favor readjustment or make it impossible.²⁰ The same thought applies to purely physical disease. For instance, in pneumonia, recovery or death may hinge not so much on the virulence of the infection, as on the integrity or vulnerability of the circulatory system. In turn, this may have been pre-determined within certain limits by previous habits of living or perhaps by the occurrence of a severe contagious disease in infancy or even by congenital valvular defect. This may seem like overmuch theorizing about a mere detail, but it is in doubtful psychoses that exact appraisal of details may diminish the margin of prognostic error.

The physical aspects of the precipitating situation as well as of the onset deserve discussion, but since they are likely to produce the same general effect, they may be more advantageously viewed retrospectively from the vantage ground of the psychosis.

ONSET.—The question of onset is complex. Historical information generally must be obtained from the family and usually the patient's relatives are neither trained observers nor in the frame of mind which is consistent with careful observation and description. Furthermore, mental disease is practically never acutely precipitated and there is almost always implied a varying period of time during which it is present, although incubating and not openly manifest. However, there is an instant when objective signs of abnormality

come to the surface. It is in the character of these initial symptoms and the violence with which they impinge against the conventions and customs of familial and social environment that judgment of acuteness of onset or gradual development depends. By such a criterion, the psychoses in 60 per cent of our patients had an abrupt onset. Perhaps, no index of prognosis may be taken from this finding, other than that in a general way, there is a greater likelihood that a benign psychosis will be abruptly initiated and a malignant one will be evolved more slowly, and for a longer time the individual will conform in some measure to ordinary and superficial environmental requirements. Barrett¹ looks on an acute and stormy onset as a favorable prognostic omen, feeling that it represents the struggle of the personality against the acceptance of psychotic material.

The period immediately preceding or coincident with the first frank symptoms is extremely critical. It may be assumed that the inhibition is enormously diminished and the individual is susceptible to outside influences, often accidental. This seems to be borne out, at least by some of the affective or benign psychoses, in which a great mass of the psychotic material is apparently drawn from chance events transpiring in the surroundings. Hoch² found that the evolution of the mental picture is subject to considerable variation, "which is dependent partly on the causative agent and on the environmental factors, and it is occasionally given a certain twist by accidental suggestions or happenings of an emotional character." In two of our patients, Miriam V. and Eliza D., extraneous happenings at or just before the onset seemed to influence the direction of the symptomatology. Miriam V. just before her illness, while profoundly fatigued read a series of fantastic detective stories, which later were an almost literal part of the paranoid delusional content. Eliza D. was "treated" by an ignorant charlatan during the transition stage from sanity to unreality. A considerable portion of the dementia precox-like behavior is perhaps traceable to the suggestions implanted in a mind already normally (?) superstitious and still further weakened by the effects of toxicity.

THE PSYCHOTIC MATERIAL—LIMITS OF DEMENTIA PRECOX.—

As a clinical entity dementia precox or schizophrenia, which may stand as a type of malignant mental disease, rests on a very insecure foundation. Uncertainty and even total divergence of opinion in regard to etiology has made for constantly shifting diagnostic

criteria. At the Round Table Conference for Clinical Psychiatry of this Association in 1921, a representative group of psychiatrists were unanimous in refusing to commit themselves to the mention of a single symptom which was surely an index of malignancy.

Kraepelin's²³ conception of dementia precox is too well known to require reiteration. Although rigidly objective, its value within certain limits is unquestionable. Perhaps a fair criticism is that he has made the association between precox and catatonia altogether too binding. If we are to accept this relationship, then we cannot concur in Kraepelin's inevitably bad prognosis. To Stransky,²⁴ the basic element of symptomatology is intra-psychic ataxia, which has led to the designation schizophrenia. By intra-psychic ataxia is understood "a disturbance of coordination between the intellectual attributes of the whole psyche and the affective attributes." There is disharmony "between the expression of affect and the idea content of thought. For example the patient cries when he should be glad, or vice versa, though much more common than this contrasted reaction is an affective reaction which is inadequate—the patient merely simpers or smiles when the facts would warrant sadness or hearty laughter."²⁵ Hoch,²⁶ postulates a particular type of disassociation. "In it there is an acceptance of what should be painful ideas evidenced either by incomplete manifestations of anxiety or depression or actually by smiling. We never see in dementia precox the reverse—a painful interpretation of what would normally be pleasant. It is the pleasurable interpretation of what is really unpleasant that gives the impression of queerness in the mood of these deteriorating or chronic cases." Meyer²⁷ emphasizes the affective alignment or contrast as determinants of the benign and malignant. Bleuler²⁸ finds that the intra-psychic ataxia of Stransky is only a part of the splitting of the psyche. Negativism is a pure exhibition of such splitting. At the bottom of the degradation of attention and interest is emotional deterioration. Kirby's²⁹ elementary description of schizophrenia does less violence to the various symptomatic notions that any we have been able to discover. Briefly there is a seclusive personality or "one showing other evidences of abnormality in the development of the instincts and feelings" . . . "defects of interest and discrepancies between thought on the one hand and the behaviour-emotional reaction on the other" . . . "gradual blunting of the emotions, indifference or

silliness with serious defects of judgment and often hypochondriacal complaints, suspicions or ideas or reference" . . . "peculiar trends" . . . "fantastic ideas" . . . "odd, impulsive or negativistic conduct not accounted for by any acute emotional disturbance or impairment of the sensorium" . . . "autistic thinking" . . . "dream-like ideas" . . . "feelings of being forced, of interference with the mind, of physical or mystical influences, but with retention of clearness in other fields (orientation, memory, etc.)." The four chief clinical forms, which however are often only transitory stages are paranoid, characterized by "prominence of delusions, particularly ideas of persecution or grandeur, often connectedly elaborated, and hallucinations in various fields"; catatonic, "prominence of negativistic reactions or various peculiarities of conduct with phases of stupor or excitement, the latter characterized by impulsive, queer or stereotyped behaviour and usually hallucinations"; hebephrenic, "prominently a tendency to silliness, smiling, laughter, grimacing, mannerisms in speech and action, and numerous peculiar ideas usually absurd, grotesque and changeable in form"; simple, "defects of interest, gradual development of an apathetic state, often with peculiar behaviour, but without expression of delusions or hallucinations." In the light of these brief references to the important aspects of symptomatology, we may consider some of the psychotic material offered by the 25 cases, especially in its prognostic implications.

In the first place, no isolated sign, no matter how conspicuous it may be, is sufficiently strong to clinch the diagnosis. "Pathognomonic symptoms as such can hardly be said to exist in mental diseases which are not of definite organic origin."¹⁰ As an illustration, distractibility and flight after passing a certain point in the ascending scale of an exceedingly acute manic phase, objectively, have much in common with either toxic delirium or catatonic dissociation.¹¹ Diagnostic differentiation, in many instances, can be made only after the influence of other associated phenomena has been duly considered. Even with this precaution in mind, we may be misled in the interpretation of any symptom or group of symptoms, unless also all the prepsychotic factors are properly weighed. Thus, from the standpoint of accuracy, the "long-section" viewpoint in which should be included these pre-psychotic facts becomes imperative.

AFFECT.—On the whole, the true state of affect probably provides the safest index of prognosis. If emotional life continues to flow in counter currents, is absolutely at odds with the thought, the behavior and the remainder of the psychotic content or is strikingly inadequate, then we have presumptive evidence of a chronic deteriorating, malignant process. However, we must always be convinced that the disharmony or diminution is actual and fundamental, resulting from the unfolding of basic disease mechanism and has not been simulated by a combination of extraneous circumstances which give to it a false appearance of malignancy. The inadequacy of our clinical resources in judging affect has been emphasized. In the 25 cases presented the first measurement of the quantity of emotion and the estimate of its quality and direction were restricted largely to the observation of objective expressions and manifestations coming to the surface during the psychoses. On such a basis, the findings most frequently pointed to schizophrenia. However, the closer analyses briefly discussed in the case reports suggested that sometimes affective insufficiency or disproportion is more apparent than real. A recapitulation reveals that in greater or lesser degree, a variety of factors, such as an attempt at evasion, a previously determined organic deficiency, a personality steeled against a display of feeling, a "paralysis" of physical expression movements¹—all traceable to the precipitating situation, antecedent somatic disease or the make-up of the individual, served to modify or distort the affective display. There is still to be considered the effect of what may be broadly termed toxicity and exhaustion.

TOXICITY AND EXHAUSTION.—Our knowledge of the limits of the results which infection or bodily and "nervous" depletion may produce is very vague. The psychosis which might be viewed as a symptomatic prototype is infective-exhaustive psychosis (psychosis with somatic disease) and yet, even here, beyond the classical deliria the clinical ground is very certain. Manic-depressive insanity of severe grade is at times practically indistinguishable from infective-exhaustive mental disease (psychosis with somatic disease). Occasionally, too, dementia precox bears a close resem-

¹ Kirby¹⁴ has pointed out that stupor seems to represent an attitude of defense similar to feigned death in animals. Here is an instance in which a symptom which is certainly objectively without affective trace arises from the setting of a strong emotional background.

blance. Mott² believes that all psychoses belong to one group and are genetic in origin.² While this is hypothetical and somewhat extreme, nevertheless, clinically, "states of infection and exhaustion may complicate any psychosis, producing a confusion engrafted on the original mental disorder."³ Still, the consensus of opinion would seem to be that although there is a considerable deficiency of attention and interest in schizophrenia, the patient is apt to be surprisingly clear and oriented, concerning that which he really perceives, so that the state of the sensorium is a prognostic consideration which should not be neglected. Of course, there are degrees of clouding of consciousness. Sometimes it is very slight and indeed the patient may even seem clear, only to refute the clearness during convalescence by recalling a distinct feeling of mental diffusion and thought difficulty, so "that they could not sort out the real from unreal."⁴ All this uncertainty leads us to seek additional aids in attempting to establish or exclude the existence of toxicity or exhaustion in our patients. This is prognostically an important issue since the mental symptoms they produce may make any psychosis more complex and, more specifically, as seemed true in some of the instances reported, these added mental symptoms may cover or disguise affective signs and give the psychosis a malignant appearance.

A partial list of symptoms which occurred at some stage in our cases and which may be witnessed alike in both true dementia precox and in disorders and syndromes ascribed to intoxication or pathological fatigue is as follows: some degree of sensorium disturbance, disorientation, auditory, visual, olfactory and gustatory hallucinosis, paranoid delusional formation, incoherence, emotional instability, catatonia and stupor. If we are able to uncover in the pre-psychotic period and more particularly in the precipitating situation, somatic conditions which might be expected to give rise

²"I am of the opinion that all the psychoses belong to one group and are genetic in origin. In those forms of psychoses in which recovery takes place—for example, confusional insanity or manic-depressive insanity—we may assume there is a suspension of neuronic function in the highest psychic level; but all these conditions I have found may end in terminal dementia, in which the changes in the reproductive organs and in the brain do not differ from those met with in the primary dementia of adolescence, the dementia indicative of a suppression of function" (Mott).

to such symptoms then we are spared the necessity of viewing them at once as elements of chronic and deteriorating entities. We feel that we are able to do this in almost 50 per cent of the patients. (See reports of cases.) Furthermore, if in the course of the mental disease itself, there are clinical signs of toxicity, then there is additional confirmation even though these signs may not be definite enough to make it possible to name the concrete infecting agent. There was fever, decline in weight, anemia, alteration in blood pressure, purulent adenitis, apical abscess, amenorrhea, Neisserian infection, leukocytosis, lymphocytosis, eosinophilia, albuminuria and other pathological urinary findings, etc. (See case reports.) We realize that it would not be difficult to find numerous instances of unquestionable schizophrenia in which, likewise, there were antecedent reasons for the development of toxic manifestations and somatic accompaniments during the mental illness, but, nevertheless, it is probably more than a coincidence that both these should be so prominent in a group of recoverable "dementia precox" states, and, finally, we feel that their presence should stay pronouncement of a bad outlook, if either at the onset or at some later stage, the psychosis has some of the characteristics of an affective reaction.

CATATONIA.—Some exhibition of catatonia occurred in practically all of the cases. This in itself is not remarkable since the symptom catatonia, originally regarded as a motor or muscular phenomenon, in line with its derivation—*κατατείνω*—I stretch tightly—has been continuously expanded until now it is made to include a variety of behaviour abnormalities such as mutism, scolding spells, impulsive violence, refusal of food, stereotypies, etc.⁶ However, marked and more or less pure catatonia, either in its positive or negative phases appeared in 14 of the 25 patients. Even before Kirby's⁷ contribution established the fact that catatonia occurred frequently in emotional psychoses, psychiatrists were beginning to realize that its occurrence did not necessarily spell dementia precox although many felt that the idea still persists to some extent, that when it is present, it constitutes an ominous prognostic sign. Catatonia is not peculiar to any psychosis, nor indeed is it restricted to the field of psychiatry. It occurs not only in dementia precox but in all the so-called functional psychoses, and in hysteria as well as in epilepsy and paresis. It has been reported in organic brain

disease, abscess, tumor, cerebellar lesions, in epidemic encephalitis, in typhoid fever, pneumonia and acute infections and in toxic and exhaustive states." In spite of its wide distribution there has been a tendency to interpret it solely as a psychological mechanism. It is conceivable that "catatonia" or symptoms which simulate it so closely that they are indistinguishable from true catatonia may arise from a number of factors and from their unravelling may come prognostic help. In our series of cases, it was suggested that its development might have been favored by racial and familial traits, pre-psychotic personal attributes, precipitating situations and extraneous conditions at the time of the onset. Finally, in a number of instances, of which the patient, Bridget O., is an outstanding example, there is reason to believe that the "catatonia" was a direct expression of somatic toxicity. It is probable that in the analysis of the entire pre-psychotic life together with a careful consideration of both the psychic and somatic aspects of the psychosis itself, we may find more reliable prognostic guides than those which are afforded by confining our attention to the intrinsic nature of the catatonia.

STUPOR.—Stupor either deep or partial was noted in seven patients. We did not find it as useful prognostically as we had anticipated. Its characteristics as an isolated reaction are sometimes deceptive and it is almost always necessary to consider it in its relations rather than separately. Undoubtedly there are frequent typical deep stupors such as Hoch⁶ has described, the cardinal symptoms of which are: (1) More or less marked interference with activity, often to the point of complete cessation of spontaneous and reactive motions and speech; (2) interference with the intellectual processes; (3) affectlessness; (4) negativism and, further, it is no doubt often possible to make out of the portrayal of the death idea. However, the syndrome is by no means constantly clear cut and there may be a breaking through in one direction or the other, even with suggestive precox-like behaviour, but unless there is schizophrenic evidence apart from the stupor, it is unsafe to decide too certainly against the chances of recovery. Hoch's study of stupor has advanced psychiatry even though he was not able to formulate an exact clinical rule. However, to remark that the organic etiological possibilities of stupor were too lightly dismissed, does not seem to be an unfair criticism. Naturally there are cases

of organic brain disease, tumor, abscess and the like, or head injury in which no question can arise and these Hoch clearly recognizes but there are also toxic conditions which are less specific and which produce stuporous symptoms, difficult to distinguish from so-called benign stupor. Hoch admits that a close resemblance exists between the stupor which he considers benign, psychogenic in origin and a part of manic-depressive psychosis and post-rheumatic stupor. On the authority of Knauer who has studied the latter, the presence of illusions is cited as a differential feature. This constitutes somewhat slim proof. Recently, one of us observed a stuporous phase appear abruptly during the course of a severe osteomyelitis. It had all the earmarks of a benign stupor—*inertia, affectlessness, suspension of intellectual functioning, etc.*, and from the setting of its onset obviously represented for the patient the concept of death—but neither was it preceded or followed by any reliable symptoms of depression.³ Unfortunately, in presenting the physical manifestations of stupor, Hoch had to depend on old case notes, in which, “records of the physical symptoms either were not made or were lost in many cases.” It is regretable that these omissions could not be rectified as the inadequate physical examinations scarcely parallel the splendid and comprehensive mental studies. For instance, the blood cells were only counted in five patients and there were only two blood pressure readings. Four of the five revealed significant leukocytosis, 23,000 (91.5 per cent neutrophilic), 12,000 to 15,000 (89 per cent neutrophilic), 15,000 (no differential), 17,500 (no differential) and one had 41 per cent lymphocytosis; the blood pressure in the two patients was systolic 110 mm. Twenty-seven of the 28 typical cases had fever. Twice it was 103° F. and once 104° F. Stockard supplied a somewhat complex explanation, by means of which the fever is traced by a series of steps of ingenious but theoretical reasoning—failure of heat loss function, imbalance in the involuntary nervous system, insufficient circulating adrenalin—and is finally reduced to the chief component of the stupor, namely, apathy. Hoch remarks that “the subject is so involved and the evidence so inconclusive that observers will probably interpret the phenomena here reported according to their individual preconceptions.” From such a viewpoint, from the

³To be reported.

analysis of our own material and with the question of prognosis in mind, we feel that while there may be classical instances, yet it is unusually difficult from an observation of the stupor itself, to determine whether it is surely benign or malignant and further there seem to be border-line reactions revealing a commingling of psychic and somatic symptoms, possibly ascribable to a mixture of psychogenic and organic causes and having a relatively good outlook.

THE PSYCHOSIS AS A TOTAL REACTION.—Sanity may be considered as a positive state equivalent to reality and mental disease as a negative phase representing unreality. From one point of view a psychosis is the end result of the struggle between individual and environment, in its broadest sense, the final overcoming of constructive forces by destructive influences. Such inimical conditions are to be sought for in the entire previous life history of the patient and, indeed, a consideration of heredity is involved. This concept constitutes a kind of philosophy of disease—not only mental but likewise organic, and, of course, does not exclude the existence of a specific etiological agent. Tuberculosis and paresis from the standpoint of causation are "specific," but it is well understood that something additional, an "x" quantity, is required before the bacillus of Koch or the spirochæte can become pathologically effective."

If insanity sometimes may be likened to a plunge into unreality, because detrimental circumstances have made reality no longer desirable or tenable for a particular individual (note especially the patients Margaret E., Edith X., Evelyn I., Ellen R., Minnie G., Catherine A.) then, at least occasionally, as detached observers we should be able to view the psychosis as the more or less natural evolution of prepsychotic precipitating factors and furthermore in the symptomatology should appear features which are the logical outgrowth of such factors. To some extent this seems to be true in certain types of affective reactions but scarcely ever does it seem applicable to dementia precox where the psychotic manifestations are usually so bizarre that it is quite impossible to put ourselves *en rapport* with the patient. Stransky "calls attention to the very different impression this disorder (dementia precox) makes on one than do such conditions as mania, melancholia, paranoia and amentia (confusion). These latter disorders seem to us to be due

to the deviation of normal processes either to the positive or negative side; we can put ourselves, as it were, in the position of the patient, can feel his feelings in miniature. The differences are merely differences of degree, or more or less. With dementia precox however, the effect is quite different. The awkward, constrained attitude of these patients make us feel quite out of touch with them, they seem unnatural, their acts "unpsychological" to coin an expression.¹¹ It is, of course, understood that the symptoms of any psychosis or in other words its "language" is scarcely ever simple and direct, being usually somewhat disguised and symbolic, but in schizophrenia it is practically never possible to penetrate the psychotic veil, without resort to much hypothetical conjecture, possibly because its mechanism is fundamentally unrelated to the events which antedated the mental disease. On the other hand, in certain benign psychoses, productions or acts which at first appear impenetrable and inaccessible to our understanding, may become more intelligible and decipherable if they are analyzed from the standpoint of pre-psychotic circumstances and happenings. Other things being equal, the possibility of such interpretation leaves some doubt as to the malignancy of the psychosis. We have already sufficiently stressed this point and in fact this presentation has been largely concerned with the exposition of the factors which might have modified the psychotic content. In the majority of the cases, we feel that an alignment between the symptomatic material, in its broad outlines and sometimes in its details, and the main elements of the pre-psychotic conditions and experiences has been established and in the light of such coordination much of the psychotic reaction becomes understandable and correspondingly admits of more favorable prognostic judgment.

CONCLUSIONS.

1. Twenty cases diagnosed dementia precox but terminating in recovery were analyzed from the standpoint of potential prognostic indications occurring either before or during the attack of mental disease. The chief considerations were race, history, both familial and personal, personality, pre-psychotic somatic status, precipitating situation, onset and the psychic and physical phenomena of the psychosis itself.

2. Racial or ancestral traits do not determine to any significant extent, the presence of symptoms which bear a malignant aspect, although clinical error may result from our inability to gauge correctly and to interpret habitual modes of reaction in an alien or unfamiliar people.

3. Heredity occasionally exerts an *indirect* effect and the previous existence of chronic mental disease in a parent may apparently create an environment from which a later developing benign psychosis in the offspring may take some of its unfavorable symptomatological aspects.

4. A close study of the personality is often fruitful and furnishes helpful prognostic guides. It is important to differentiate between a basic and constitutional seclusive make-up and one in which the withdrawal from socialization constitutes for the individual a somewhat logical defense and protection against definitely inimical surroundings. Catatonic manifestations during the psychosis may be occasioned by the re-appearance of deeply ingrained dispositional "stubbornness." Abnormality of personality in itself, is not sure evidence of chronicity and a psychosis which seems prognostically unfavorable may be given, falsely, such an appearance by determining pre-psychotic idiosyncrasies of character. If the psychosis is in some sense an evolution of such peculiarities and no deterioration of personality is implied, then the outlook is not necessarily hopeless.

5. Rarely sensory deprivation due to previous organic disease may influence the behavior during the psychosis so that it seems bizarre, unrelated to affect and malignant. In reality this reaction may be the result of organic handicaps or deficits which prevent emotional expression from reaching the surface in a recognizable and understandable form.

6. The precipitating situation needs to be considered in regard to its intrinsic seriousness, its somatic and psychogenic elements, its acuteness or chronicity and the possibility of its correction. If the precipitating situation is innately significant and the psychotic content reflects its component factors, then the psychosis may be benign even though the symptoms in themselves have a somewhat sinister aspect. It is possible that strong affective features in the precipitating situation may condition the occurrence of seemingly affectless catatonic phenomena in the psychosis.

7. The transition stage from reality or sanity to unreality or mental disease is an extremely critical period. Inhibition is decidedly lessened and extraneous, accidental happenings may be deeply impressed and later elaborated into apparently malignant symptoms. Other things being equal, an acute, stormy onset is a favorable prognostic sign.

8. An affective display which is markedly at variance with the remainder of the psychotic content (particularly the ideation and the behaviour) or a notable insufficiency or affect ordinarily constitute criteria of chronicity. Prognostically, however, it is important to distinguish between the psychosis in which the emotional dis-harmony or paucity result from the unfolding of a fundamental disease process and the one in which the apparent lack of alignment and emotional inadequacy are determined by independent factors not concerned with the basic mechanism of the psychosis.

9. Toxicity or exhaustion may complicate a benign psychosis and impart to it a deteriorating guise. For instance, this may result when affective expression is masked or distorted by intercurrent clouding of consciousness. Both the pre-psychotic life and the psychosis should be carefully scrutinized for evidence of infection or bodily depletion.

10. Catatonia has a wide-spread distribution and is not peculiar to dementia precox. It may be a response to toxicity and it then admits of a hopeful prognosis.

11. There are stuporous states, complete or partial which do not meet the clinical requirements of benign stupor and yet they may not be looked upon as infallible signs of deteriorating process. The stupor, in itself, does not furnish a safe prognostic indicator and it must always be considered in its relations to the entire psychosis. We feel that the influence of somatic factors was not properly weighed in the delineation of so-called benign stupor.

12. Careful study, not only of the actual mental symptoms but of all the antecedent factors which may have been influential in moulding or complicating the expression of the psychosis and their proper evaluation should tend to reduce the margin of prognostic error.

REFERENCES.

1. Wundt, Wilhelm: Outlines of Psychology, William Englemann, Leipzig, 1907.
- 2, 18. Myerson, A.: The "Nervousness" of the Jew, Mental Hygiene, Vol. IV, No. 1, pp. 65-72, January, 1920.
- 3, 4, 5, } 17, 26, } Hoch, August: Benign Stupors, The MacMillan Co., New York, 36, 49. 1921.
- 6, 10. Urstein, Maurycy: Spätpsychose Katatoner Art., Urban und Schwarzenberg, Berlin, 1913.
- 7, 41. Stocker, W.: Besteht zwischen einem Katatonischen Stupor und Erregungszustand einerseits, und einer depression, Vielmehr depressivem Stupor und einer Manie andererseits ein grundsätzlicher Unterschied und worin besteht dieser. Zeitschrift für die Gesamte Neurologie und Psychiatrie, Band XXXII, Heft I, Seite 39, March 11, 1916.
8. Bond, E. D.: The Use of the Thermometer in Mental Diseases. Boston Medical and Surgical Journal, Vol. CLXXXIII, No. 19, pp. 550-554, Nov. 4, 1920.
9. Strecker, E. A.: A Psychosis of Seventeen Years' Duration with Recovery. Journal of the American Medical Association, Volume LXIV, pp. 1151-1154, April 3, 1915.
- 11, 34. Stransky, Erwin: Über Die Dementia Präcox, Streifzüge durch Klinik und Psychopathologie. J. E. Bergmann, Weisbaden, 1909.
- 12, 24. Crile, Geo. W.: The Origin and Nature of the Emotions, W. B. Saunders Co., Phila. and London, 1915.
- 13, 27. Hare, H. A.: Practical Therapeutics, Lea Bros. and Co., New York and Phila., 1907.
- 14, 48. Bonhoffer, K.: Die Psychosen. Handbuch der Psychiatrie. Aschaffenburg. Spezieller Teil, III Abteilung, I. Hälfte. Deuticke, Leipzig und Wien, 1912.
15. Bond, E. D.: A Study of Self-Accusation, American Journal of Insanity, Vol. LXXIV, No. 2, Oct., 1917, pp. 169-184.
- 16, 23. Strecker, E. A.: A Preliminary Study of the Precipitating Situation in 200 Cases of Mental Disease. American Journal of Psychiatry, Vol. I, No. 4, April, 1922, pp. 503-536.
19. Bond, E. D.: Personality and Outcome in 200 Consecutive Cases. American Journal of Insanity, April, 1913, Vol. LXIX, No. 4, p. 731.
20. Bond, E. D., and Abbot, Stanley: Personality in Dementia Präcox and Manic-Depressive Psychoses, American Journal of Insanity, Vol. LXVIII, 1912, p. 359.
21. Hoch, August: Personality and Psychosis, American Journal of Insanity, Vol. LXIX, Special No. 5, 1913, p. 887.
- 22, 32, } 40, 45. } Hoch, Theodore A.: Acute Psychoses with Symptoms Resembling Dementia Präcox. American Journal of Psychiatry, Vol. I, No. 3, January, 1922, pp. 365-732.

25. Cannon, Walter B.: Bodily Changes in Pain, Hunger, Fear and Rage. Appleton, New York, 1915.
28. De Lee: Popular Communication.
29. Baer: Popular Communication.
- 30, 50. Strecker, E. A.: The Non-Specificity of Mental Disease. *Mental Hygiene*, Vol. VII, No. 2, April, 1923, pp. 277-306.
31. Barrett, Albert M.: Personal Communication.
33. Kraepelin, Emil: *Dementia Praecox and Paraphrenia*, Translation by R. Mary Barclay. E. & S. Livingstone, Edinburgh, 1919.
- 35, 44, } White, William A.: Outlines of Psychiatry. *Nervous and Mental*
51. } Monograph Series, No. I. Seventh Edition, Washington, 1919.
37. Meyer, Adolf: Constructive Formulation of Schizophrenia. *American Journal of Psychiatry*, Vol. I, No. 3. January, 1922, pp. 355-365.
38. Bleuler, Dementia Praecox oder Gruppe der Schizophrenien. *Handbuch der Psychiatrie—Aschaffenburg, Spezieller Teil*, IV Abteilung, I Hälfte. Deuticke, Leipzig und Wein, 1911.
39. Statistical Manual, 3d Edition. Published by The National Committee for Mental Hygiene, New York, 1923.
- 42, 47. Kirby, George H.: The Catatonic Syndrome and its Relation to Manic-Depressive Insanity. *Journal of Nervous and Mental Disease*, Vol. 40, No. 11, November, 1913, pp. 694-704.
43. Mott, Sir Frederick W.: The Genetic Origin of Dementia Praecox. *The Journal of Mental Science*, London, Vol. LXVIII, No. 283, pp. 333-347, Oct., 1922.
46. Strecker, E. A.: Certain of the Clinical Aspects of "Late Katatonia" with Report of Cases. *Proceedings of the American Medico-Psychological Assn.*, 1917.

DISCUSSION.

DR. STRECKER.—The issue in this paper is not one of diagnosis, but one of prognosis. Probably it is a mistake to have the prognosis follow too closely upon the heels of diagnosis. It is a mistake in internal medicine and probably a greater mistake in psychiatry. This paper, and you will appreciate Dr. Willey's difficulty in attempting to reduce a long paper to a short abstract, this paper was an attempt to analyse conditions which had a malignant aspect but which were in reality benign. A great many modifying factors were discovered; for instance, race, which probably has no intrinsic effect, but which on account of the difficulty it presents in enabling us to gauge the affective, or emotional, reaction in the alien patient, was a factor in altering the particular psychosis of the patient.

Dr. Willey stated that personality gave us the most material. He mentioned that it is necessary to differentiate between personality, which is basically and constitutionally seclusive independent of extraneous factors, and a personality which develops seclusiveness more as a defense reaction,

and a logical defense reaction when the extraneous circumstances are such that the natural thing for the patient to do in order to preserve his or her personality is to become seclusive. We have several such cases in our list.

Personality may be also otherwise effective. For instance, there are a number of patients in our list who showed marked traits of stubbornness in their makeup. In one patient stubbornness was so marked that she had developed in her childhood what may be called a physical reaction pattern. When opposed in any way she would lie on the floor, kick her legs and go through various motions. Later on in the psychosis this looked like a dementia praecox reaction. The patient, with treatment, got entirely well. What was thought to be catatonic praecox was merely a repetition of an ingrained physical reaction pattern which came from an extremely stubborn personality. The onset of the psychoses is, as of course you know, a critical time. Any extraneous incident happening at that particular time is capable of modifying the further symptomatology of the psychosis. This was strikingly shown in one case where a woman who was pregnant and exhausted at the onset of the mental symptoms read a series of very vivid detective stories, which were carried into the psychosis as paranoid symptoms. The precipitating situation is of considerable importance. We found when the precipitating situation was adequate, where it was significant, then the psychosis seemed to reflect its chief incidents and the outlook was good. We had one patient in whom the psychosis received its malignant coloring from the fact that the patient had somatic delusions, feelings of iciness, and what I might call inverted ideas of reference. She felt she harmfully influenced those about her, and had the sensation of newly acquired power. We found in this particular case the psychosis was merely a correction of the precipitating situation which had a feeling of inferiority as its main component. The psychosis was merely an artificial and temporary correction of this feeling. It looked malignant, but with this explanation in mind it proved to be benign.

DR. BOND.—The writers of this paper might apologize for presenting a merely clinical discussion to a society such as this, especially when they venture upon the fields of diagnosis and prognosis. At any rate, the pinning of the diagnosis of dementia praecox on these cases has not hurt the patients very much, because all the patients have recovered.

DR. WHITE.—I have been very much interested in this paper, because I think the subject that the paper has treated is one of tremendous importance—dementia praecox, the most difficult problem we have to deal with. The prognoses are exceedingly difficult to arrive at. Of course, the descriptive prognostic criteria can be formulated after a fashion. The hereditary component, for example, is one of them. The degree of splitting as exemplified in the delusional and hallucinatory systems is another one, but these criteria are of very little use except statistically. When you get to the individual patient and want to know whether that patient is going to get well or not the statistical criteria fails. I am myself very much of the

opinion that the only way in which we can get any idea as to whether a given patient is going to get well or not is by a study of his psychologic symptoms and an interpretation of their symbolic significance. The criteria of recoverability, I think of as being expressed in terms of the degree of fixation, the depth of regression, and the components of the personality which remain capable of still fighting the battle for recovery, and the only way in which one can get any understanding of how those various forces are opposed to each other and their relative strength is by an effort to interpret the symbolisms of the psychosis. I am absolutely convinced that a dissection of the psychological symptomatology will disclose quite as important material as the microscope will disclose in the study of the tissues.

Now just a single example that came to my mind as I was listening to the paper. We have in our hospital a Filipino who has a paranoid type of *præcox*, a very elaborately delusional *præcox* type. He fortunately is disposed to paint pictures which express his delusional symptoms in symbolic form, exceedingly complicated affairs which under analysis, however, disclose practically the entire history of his conflict, and if subjected to interpretation along psychological lines, disclose how he is attempting to solve it. On one side of the picture there are fragments of a man who has been cut up into little pieces; on the other side of the picture is a woman pierced by an arrow; and in the middle of the picture is a picture of himself surrounded by a lot of alter egos, all of which are white and colorless, and if we stopped at that point, we would think that the conflict had resulted in a state of disintegration with no possibility of his coming back. But under this pale individual's arm there is a sword, and that sword is blood red, and on the basis of that symbolism alone I predicted the fact that that patient had not relinquished his virility. We have to seek to get our information. My prediction was correct. This man is continuing to make a fight, and his adjustment is a very useful one in hospital surroundings.

DR. DEVLIN.—This paper, the title of which contains the word recoverable, should prove of interest to us, and without wishing to enter into any discussion of the facts therein brought forth, I would just like to ask one of these gentlemen if he could tell us if there was any particular line of treatment that attended this very happy result obtained in these cases.

DR. WILLEY (closing).—I feel that I can add nothing to the discussion except my appreciation of the very excellent and helpful remarks of the discussants.

The inquiry about therapy in these cases I can answer only in general. The remark has been made in a humorous way that these patients just seem to get well in spite of treatment. The results can probably not be correctly traced to anything in the therapy, yet every diagnostic and therapeutic procedure offered by a modern hospital was utilized on both the physical and mental side, and every incentive to mental recovery was present.



SOME ROENTGENOLOGIC OBSERVATIONS OF GASTRO-INTESTINAL CONDITIONS ASSO- CIATED WITH MENTAL DISORDERS.*

By GEORGE W. HENRY, M. D.,

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This paper cannot be considered more than a preliminary report upon the frequency of unusual and pathological conditions associated with psychoses in general, and also of some observations tending to show that visceral position, tonus, and motility are affected by different types of psychoses in addition to the variability due to habitus. By habitus is meant the relation of the position, tonus, and motility of the stomach and intestines to the bodily build of the individual.

In this study observation was made routinely on six consecutive days and occasionally for longer periods on over 100 cases. There was no selection of cases and in over 50 per cent of them the nature of the psychosis was not known to the observer. The diagnoses and conditions of the patients were obtained from the clinical records after a study of the films had been made. In over 75 per cent there was no special complaint or physical condition which would ordinarily lead to an x-ray study of the gastro-intestinal tract and with perhaps one or two exceptions in the remaining 25 per cent there was no specific complaint or condition other than constipation, indigestion, or perhaps reduction in weight.

The routine followed in all cases was essentially the same. On account of the fact that no cathartics or enemas were allowed during the series which frequently lasted five days or longer it was thought wise to start with the alimentary tract clean so that each patient examined received a cathartic on the night before the series was begun. If the series was started early in the morning they also received an enema the night before, and if the series was started

* Read at the seventy-ninth annual meeting of The American Psychiatric Association, Detroit, Mich., June 19, 20, 21, 22, 1923.

late in the morning the enema was given early on the same morning. Breakfast was omitted and two and one-half glasses of barium solution given.¹

Within the first half-hour after the patient drank the barium solution eight radiograms were made, seven with the patient lying prone and the eighth with the patient standing erect. Most of the patients were allowed a light lunch at noon as it was felt that the small proportion of six-hour gastric retentions found did not justify depriving all of the patients of two meals. In view of this no report of gastric retention was made on the routine six-hour radiogram unless there was retention of a third or more of the barium solution. Subsequent radiograms were made routinely on five successive days or until all barium had passed from the alimentary canal. Studies of this kind were only rarely continued longer than six days on account of the discomfort of constipation, etc., to the patient. Twenty-four hours after the barium meal radiograms were made in both the prone and erect postures but thereafter only prone postures were used. Additional studies were made of the stomach and intestines by means of the fluoroscope whenever these were indicated. When there was any doubt as to interpretation of radiograms or the clinical findings specialists were consulted. All radiograms were routinely examined by prominent internists from the New York Hospital.

A report will be made first of the frequency of the unusual and pathological conditions observed in the first hundred cases studied. They are as follows:

- 12 six-hour gastric retentions.
- 4 malformed duodenal bulbs.²

¹This solution was composed of 180 gm. barium sulphate, two tablespoonfuls of cocoa-sugar mixture two parts of which was cocoa and one part sugar, and 425 c. c. of water. Although this is a relatively large amount of solution it was found desirable after some experimentation to use this amount in order to obtain good definition of the stomach and intestines and practically very little difficulty was met in getting the patient to drink this amount and only rarely was there any discomfort following.

²"Importance of Indirect Roentgen Findings in Chronic Infection of the Biliary Ducts and Gall-Bladder," by M. P. Burnham, M. D., in the American Journal of Roentgenology and Radium Therapy, February, 1923.

- 1 duodenal ulcer.³
- 2 with evidence of gall bladder adhesions.
- 15 with marked six-hour ileal retention.
- 2 with 24-hour ileal retention.
- 28 with appendical retention, and of these there were
 - 7 with kinks and one had a concretion.⁴
 - 13 with retention and irregular emptying caecum.
 - 72 with apparent angulation at hepatic flexure.
 - 70 with apparent angulation at splenic flexure.
 - 22 with marked delay in emptying the transverse colon (96 hours or longer).
- 40 with marked delay in emptying the rectum (120 hours or longer).
- 1 with ulcers of colon.
- 3 with diverticulitis.
- 1 megacolon.
- 1 renal calculus.

It is quite natural that various interpretations of the above findings will be made. The patient who had suffered from "Nervous Indigestion" for 20 years and who was found to have a definite duodenal ulcer may be cited as an example of the need of greater care in the examinations of individuals who are frequently estimated and often neglected as being "neurotic," "psychopathic," etc. On the other hand, among the first 100 patients studied is found an example of an equally important mistake in the form of too much misdirected attention. This was an unmarried psychoneurotic woman, age 38, who over a year before admission to the hospital complained of some vague abdominal pain and as a result had her

³This duodenal ulcer was found in a married woman, age 42, whose psychiatric diagnosis was manic-depressive excitement, who for 20 years had suffered from stomach trouble which had been diagnosed by several physicians previous to admission to the hospital as "Nervous Indigestion."

⁴By appendical retention is meant a definite retention of barium in the appendix for at least 24 hours after the cecum and ascending colon have been emptied. Several patients had retentions of this kind for more than one week and one patient who suffered from recurrent manic-depressive psychoses and who had never had any physical attack or symptoms referable to the appendix retained barium in his appendix without symptoms for at least 51 days after the barium meal.

appendix removed. She received little benefit from this, was under-nourished, and on advice had a resection of her descending colon. No benefit was obtained from this and a little later it was necessary to operate again to repair a faulty anastomosis in the previous operation. Since this last operation it is stated that she has been "greatly depressed and out of harmony with herself." On account of the latter condition she was admitted as a voluntary patient to this hospital. Subsequent observations made it appear obvious that her physical complaints were essentially psycho-neurotic in nature with the exception that she was 28 lbs. under-weight, and x-ray studies of the gastro-intestinal tract showed a very large fish hook stomach with the pyloric end drawn markedly to the right and upwards, fixation of the cap at the level of the first lumbar vertebra, six-hour gastric retention of one-half of the barium meal, and retention of barium in the cæcum for longer than five days. It is probable that most of the above roentgenologic findings are due to adhesions subsequent to her abdominal operations. She had become so thoroughly impressed with the possible etiological relationship of her physical condition or symptoms to her difficulties in general that it was extremely difficult to get her to accept any other viewpoint. Throughout her few months' stay in the hospital she was very uncooperative and finally left the hospital against advice. It has been learned since that another abdominal operation was to be undertaken.

Considering the present limitations in our knowledge of the relationship of essentially physical disorders to mental disorders it would seem impossible to draw any general conclusions in regard to the above tabulated unusual and pathological conditions. They seem to emphasize the need of more careful examination and evaluation of conditions found regardless of the patient's mental state. In deciding what remedial procedure shall be followed it is the policy at this hospital to consult the best expert opinions obtainable and be governed by what seems to be the consensus of opinion. Whatever conclusions are drawn and procedures adopted depend largely upon the merits of the individual case rather than any general or routine therapeutic program.

In the remaining portion of this paper I would like to present some observations tending to show that visceral position, tonus,

and motility are affected by different types of psychoses in addition to the variability due to habitus. These observations were made upon 100 unselected cases in which no definite organic disorder was found. After a study of the films had been made these cases were grouped according to their mental condition at the time that they were x-rayed. Conclusions as to the mental condition of each patient at the time the x-ray observations were made were reached only after a careful abstract of the case records of each patient had been made and members of the clinical staff interested in the particular patient had been consulted. As a result the following grouping was obtained:

- 35 cases of depressive psychosis.
- 25 cases of dementia praecox.
- 18 essentially normal.
- 6 cases of manic-depressive excitement.
- 6 cases of paranoid condition.
- 3 cases of psychoneurosis.
- 2 cases of toxic exhaustive psychosis.
- 2 cases of drug addiction.
- 2 cases of constitutional inferiority.
- 1 case of psychosis with luetic infection of central nervous system.

Preliminary to further discussion of the findings obtained in this study it might be well to outline briefly the general normal standards used as a comparison. In doing this frequent excerpts will be made from a recent text-book, "The Roentgen Diagnosis of Diseases of the Alimentary Canal," by Russell D. Carman, M. D.

In general, there are three factors which contribute to variations in form, position, and to a less extent tone, peristalsis, and motility of the stomach and intestines, particularly the former. These factors are the "build" of the individual, the tension of the abdominal wall, and the weight of the individual.

In regard to "build," individuals have been divided into three classes, namely the hyperasthenic, the sthenic, and the asthenic. The hyperasthenic person is one "with robust frame, great body-weight and musculature, long abdomen, short, broad and deep thorax, ribs running almost horizontally to the sides, and obtuse epigastric angles, etc. . . . Gastric motility is fastest, and tonus

is most marked in this type. If a low stomach is found in this type there must be a pathologic condition to explain it. . . ." "The asthenic person is of slight build, with a long narrow shallow thorax, steeply falling ribs, wide intercostal spaces, acute epigastric angle, . . . etc." "A high stomach in this type would indicate a lesion either in or about the stomach." "Between these two extremes is the sthenic person."

The tension of the abdominal wall and the height-weight ratio have a somewhat similar relationship in their effect upon the contents of the abdomen as "with a wall of good tone, other things being equal, the stomach and abdominal viscera will be held up at a higher level than if the wall is lax," and it is known also that within certain limitations at least, adipose tissue acts as a support to the contents of the abdomen.

In considering gastric tonus Carman's descriptions were in like manner used as a standard for comparison. "According to Schlesinger's⁵ classification, which has received rather general acceptance, four varieties of tonus are distinguished—the orthotonic, hypertonic, hypotonic, and atonic. He regards the orthotonic stomach as one which contracts on its contents with sufficient force to maintain a tubular form, even with a moderate amount of ingesta, and he assumes that the orthotonic stomach is normal because most frequently seen and because it performs its functions in a normal manner." "The hypertonic stomach shows an excess of tonicity. It is short, has a small flattened gas-bubble, is broadest at the cardia, and its walls narrow steadily to the pylorus, giving it a steer-horn form and an oblique or transverse position. The hypertonic stomach, though relatively infrequent is not pathologic." "His conception of a hypotonic stomach is one which evidences relaxation of its longitudinal muscle-fibers by an increase of length, and consequent sagging downward. The circular fibers are also relaxed and, with the patient standing, the barium meal broadens the diameter of the lower pole, which sinks below the umbilicus. The upper pars media is somewhat narrowed by the tendency to approximation of its vertical walls." "The atonic

⁵ Schlesinger, E.: "Die Grundformen des normalen und pathologischen Magens und ihre Entstehung." Berl. klin. Wchnschr., 1910, xlvi, 1977-1981.

stomach shows relaxation to an extreme degree. Ingesta which would completely fill an orthotonic stomach now merely fill the expanded, basin-like lower pole. The vertical walls of the pars media approach each other, closely enough in some instances to retard momentarily the descent of barium. The gas-bubble, without support below to give it a semilunar shape, appears fusiform." The atonic stomach "should be discussed in connection with the normal stomach, for it is a 'defective physiologic action rather than a pathologic condition.'"

Further standards of comparison may be referred to briefly as follows: "With the stomach empty at the end of six hours and the head of the motor meal anywhere from the cæcum to the hepatic flexure the gastric motility is considered normal. . . ." "Hyperperistalsis (gastric), with an increase of the number (three or more) and depth of the waves on both curvatures, is seen typically in obstructing lesions of the duodenum." "The normal limit for fairly complete evacuation of the small bowel, as defined by roentgenologists who have occupied themselves with the matter, ranges from eight to 15 hours after taking the barium meal." "Hurst^{*} suggests the following as an average time-table for the 'head' of the ingested meal:

Cæcum	4 hours.
Hepatic flexure	6 hours.
Splenic flexure	9 hours.
Pelvic colon (sigmoid).....	12 hours.

From this point on, the rate of progress will depend upon the time and frequency of stooling, and as this occurs ordinarily once daily, a 24-hour variation is easily possible under normal conditions. Twenty-four to forty-eight hours is regarded by many roentgenologists as a fair time basis for the passage of bariumized food through the digestive tract."

Inasmuch as no similar study has been made upon the so-called normal individual the general averages of the group of 18 patients mentioned above as being "essentially normal" were taken as a standard by which comparison with other groups might be made.

* "Hurst, A. F.: Constipation and Allied Disorders." 1909, London, Frowde, 110.

By "essentially normal" is meant that each patient in this group had been in his or her usual normal mental condition for a period of at least two weeks. That they were probably all not in an entirely "normal" mental condition would be suggested by the fact that they were still patients at the hospital. On the other hand if the observations made in this study prove to be correct one might hesitate to accept the findings in a group of so-called normal individuals as being representative of the average normal unless the mental state of these individuals at the time the observations were made was determined by a psychiatrist as being normal.

This "essentially normal" group was composed of patients who had suffered from the following psychoses: ten with manic-depressive depression, three with manic-depressive excitement, one with constitutional inferiority with psychosis, one with paranoid condition, one with toxic exhaustive psychosis, one with constitutional inferiority without psychosis, and one with psychosis associated with hyperthyroidism. It is interesting and suggestive that the findings in this group correspond fairly well with what might be expected to be found in the average so-called normal individual who had not suffered from a psychosis. The findings in this group are as follows:

STOMACH.

Position—erect—lower pole—average 2.1 inches below iliac crest.

Tonus—4 hypertonic; 11 orthotonic; 3 hypotonic.

Motility—one six-hour gastric retention.

SMALL INTESTINES.

Three marked six-hour ileal retentions.

LARGE INTESTINES.

Position (averages):

Cæcum 4.3 inches below iliac crest.

Hepatic flexure 2.4 inches above iliac crest.

Transverse colon 4.2 inches below iliac crest.¹

Splenic flexure 3.4 inches above the iliac crest.

¹The lowest portion of the transverse colon was measured in each case.

Tonus:

Cæcum—13 orthotonic; 5 hypotonic.

Transverse colon—1 hypertonic; 13 orthotonic; 4 hypotonic.

Rectum—10 orthotonic; 1 hypertonic; 7 not determined.

Motility (averages):

Cæcum—47 hours retention.

Transverse colon—42 hours retention.

Rectum—67 hours retention.

In interpreting the findings in the above "essentially normal" group allowances must be made for the fact that five of these 18 patients have definite relaxation of the abdominal wall. This would of course lower the general average position of the stomach and intestines and probably influence to some extent the tonus and motility.

It will now be interesting to compare the findings of this "essentially normal" group with those found in the groups of depression and excitement, *i. e.*, in both phases of affective psychosis, and also with those found in the dementia praecox group. The latter has been divided arbitrarily into two groups, one group being composed of those patients the duration of whose illness has been less than five years and therefore more generally acutely ill and the other group composed of those patients the duration of whose illness has been more than five years or in other words those patients in whom a certain amount of readjustment might be generally expected.

STOMACH.

	Normal.	Excited.	Depressed.	Dementia praecox (acute).	Dementia praecox (chronic).
POSITION.....	.21 in. below.*	.5 in. above.	.11 in. below.	.11 in. below.	.9 in. below.
TONUS:					
Hypertonic	22%	50%	14%	13%	45%
Orthotonic.....	61%	50%	72%	68%	33%
Hypotonic	17%	None.	14%	13%	11%
Atonic	None.	None.	None.	6%	11%
MOTILITY:					
Six hour retention	5%	None.	8%	19%	22%

SMALL INTESTINES.

MOTILITY:					
Marked six-hour retention	17%	None.	54%	19%	22%

LARGE INTESTINES.

POSITION:

Cæcum.....	4.3 in. below.	3.5 in. below.	4.2 in. below.	4.8 in. below.	3.9 in. below.
Hepatic flexure...	2.4 in. above.	3.0 in. above.	1.2 in. above.	2.1 in. above.	2.4 in. above.
Transverse colon.	4.2 in. below.	2.0 in. below.	4.1 in. below.	3.0 in. below.	1.7 in. below.
Splenic flexure...	3.4 in. above.	4.8 in. above.	4.0 in. above.	4.3 in. above.	4.2 in. above.

TONUS:

CÆCUM:

Hypertonic	None.	17%	None.	0%	0%
Orthotonic.....	72%	67%	74%	75%	67%
Hypotonic	28%	None.	26%	25%	23%
Atonic	None.	17%†	None.	9%	0%

TRANSVERSE COLON:

Hypertonic	6%	17%	6%	19%	45%
Orthotonic.....	72%	83%	49%	44%	45%
Hypotonic	22%	None.	40%	37%	10%
Atonic	None.	None.	5%	0%	0%

RECTUM:

Hypertonic	6%	None.	6%	6%	11%
Orthotonic.....	56%	83%	51%	44%	78%
Hypotonic	None.	None.	11%	31%	0%
Atonic	None.	None.	3%	6%	0%
Not determined...	38%	17%	29%	13%	11%

MOTILITY (RETENTION):

Cæcum.....	47 hrs.	28 hrs.	53 + hrs.	67 + hrs.	38 hrs.
Transverse colon.	42 hrs.	44 hrs.	82 hrs.	68 + hrs.	43 hrs.
Rectum	67 + hrs.	68 hrs.	?	?	?
(1 over 5 days.)	(None over 5 days.)	(21 over 5 days.)	(9 over 5 days; i. e., 54%)	(1 over 5 days; i. e., 11%)	

* All measurements are from iliac crest.

† Due to a chronic appendix.

From a study of the above averages and percentages you will observe that in the manic phase of affective psychoses there is a definite tendency towards normal or even higher position, towards normal or hypertonic tonus, and normal or even more rapid motility, whereas in the depressive phase of affective psychoses there is a definite tendency towards just the opposite conditions. It should be mentioned that the sluggishness particularly of the large intestines as indicated by the time required for the barium to pass in the depressed and acute dementia præcox groups is considerably greater than is indicated by the above averages (*i. e.*, the series was discontinued in most cases before the barium was passed). It will be noticed that the difference in motility of the large intestines of the excited and depressed group is quite striking. This is particularly true in the comparative time neces-

sary to empty the rectum of barium as in the excited group it required on an average of 68 hours whereas in the depressed group group 60 per cent of the patients required longer than 120 hours to empty the rectum. This difference would be even more marked if it were not for the fact that some of the depressed patients by mistake received laxatives during the period of observation.

As a general practice it was not feasible to continue the series longer than six days because many of the patients who had difficulty with constipation were in discomfort by that time. Some complained that they had had no bowel movement for several days. An example of the marked sluggishness which occurs in markedly depressed patients is seen in a married woman, age 48, who had had three children, two miscarriages, was 33 pounds under normal weight for her height, had very little abdominal relaxation, and who was underactive, undertalkative, felt depressed and confused, and thought she was affected by electricity. In this case the usual routine was followed for six consecutive days and then she was returned to the clinical service without any particular instructions so that the usual routine of treatment would follow. According to the nurses' notes she received on the sixth day an enema which was followed by "copious return, thick fluid, constipated stool." On the same day she also received two drachms of cascara which was followed by a "large stool." On the seventh day she received two drachms of cascara which was followed by a "small stool." On the eighth day she received four drachms of cascara which was followed by a "watery stool," a "small constipated stool" and a "copious watery stool." On the tenth day she received two drachms of cascara and had no movement. On the eleventh day she received four drachms of cascara which was followed by a "small constipated stool." On the thirteenth day after the series was begun she received an enema with "thick fluid return with large masses of faeces." In the meantime radiograms were made to determine how the barium was progressing. It required more than 96 hours to empty the cæcum, more than eight days to empty the transverse colon, more than ten days to empty the descending colon, and there was still some barium in the rectum and sigmoid at the end of 14 days. This should not be considered an exceptional case as it has been duplicated frequently in cases of this kind. Neither

should the treatment given be considered in any way a reflection on the clinical service as from a purely clinical viewpoint there was no indication for more drastic treatment. At this time it might be well to call attention to the fact that regular bowel movements are not in themselves sufficient evidence that the motility of the intestines is normal as the movement may be the residual of something eaten a week or two ago, and there is probably no better way of determining this than by following the course of a barium meal through the alimentary canal.

Included in the group of depressed patients were ten cases of involutional melancholia. A comparison of these cases with the rest of the group showed that the condition found in involutional melancholias approximated those found in other depressed conditions with the exception that in the case of the former the motility was somewhat better.

The depressed cases were divided into groups according to their weight and it appeared from the findings that the more poorly nourished a depressed patient is the more accentuated are the findings which are more or less characteristic of depression. For instance it requires an average of 32 hours for a barium meal to reach the rectum in cases of depression whose weight was normal for their height whereas the average time required for depressed patients who were between 20 and 40 pounds under weight was 48 hours. This is especially interesting in view of the statement by Carman of the Mayo Clinic that "*Retention* of all or the greater part of the meal in the colon after 48 hours may be regarded as possibly significant of obstruction or grave functional disturbance. . . ."

That the height-weight ratio is probably a relatively unimportant factor in influencing gastro-intestinal functions is shown by the fact that one-half of the excited patients in whom the findings were just the opposite were between 20 and 40 pounds under weight for their height. It is also probable that the degree of abdominal tension is not a particularly important factor as definite abdominal relaxation was found in 17 per cent of the excited patients whereas it was present in only 11 per cent of the depressed patients.

By dividing the group of depressed patients into two groups according to the degree of intestinal sluggishness it was found that

the group with marked sluggishness was in general composed of patients who were markedly depressed while the group without marked sluggishness was composed in general of patients who were only mildly depressed. Further comparison between these two groups showed that the average age was the same in both groups, and that the average duration of illness as well as the average number of previous attacks was the same in both groups. It would seem therefore that the essential accompaniment of the changes in gastro-intestinal functions in patients suffering from affective psychoses was the change in mood itself.

Quite a variety of conditions were found among the dementia praecox cases according to the type and duration of illness. Catatonic forms tend to show normal or higher position, hypertonicity, but hypomotility. (It is interesting that a similar condition is seen in voluntary activity at least in catatonic stupors where there is an excessive amount of muscular tension without productive activity.) Paranoid forms show a tendency towards higher positions and greater amount of tonus than the normal, particularly of the stomach and proximal two-thirds of the colon, but a more marked hypomotility than even the depressions. It is interesting that the changes seen in dementia praecox are more noticeable during the acute stages whereas in the chronic patients where more or less mental adjustment has taken place there is a definite tendency to return to approximately normal gastro-intestinal functions.

Paranoid states show a tendency towards higher position, and greater tonus than the paranoid dementia praecox with only a slight degree of hypomotility. It seems probable that in all psychoses in which there are paranoid trends there is a tendency towards hypomotility and hypotonicity of the sigmoid and rectum. If the latter should prove to be true it might be considered an interesting physiological accompaniment or residual of anal eroticism which psychoanalysts claim to be associated with homosexuality and paranoid tendencies.

Psychoneurotics seem to be prone to hypertonicity or even spasms with perhaps hypomotility. Too few cases have been observed however to permit generalizations with any feeling of security. No report can be made at the present time on other types of illnesses on account of the small number studied.

Thus far there has been opportunity to study only one patient in different phases of affective psychosis. One observation was made during a hypomanic state and the other in a mildly depressed state. The results corresponded to the typical findings in the different affective states as already described. There are noticeable changes in the position and tone of the stomach and intestines. While in the hypomanic state all barium was passed at the end of 72 hours and without any discomfort whereas while in the mildly depressed state at the end of five days after the barium meal the transverse colon, descending colon, sigmoid and rectum were still filled with barium, the patient had suffered from feelings of constipation for at least three days, and it required a good part of a day with enemas, cathartics, etc., to relieve the discomfort.

One might speculate as to the relationship of gastro-intestinal functions to moods, emotional and instinctive reactions, attitudes, psychoses, etc. The effect of grief, sadness, anger, hate, fear, unpleasant and pleasant surroundings, etc., upon gastric functions particularly has been commonly observed. That there is a relationship probably no one would doubt, and it would seem that the results of this study might be considered additional evidence of this relationship. As far as the relationship of changes in gastro-intestinal functions to psychoses is concerned it is doubtful whether there is sufficient evidence at the present time for considering either as a cause or an effect of the other. It is probable that such a relationship varies in individual cases. It would appear also that the results of this study might be considered evidence of definite changes in the functions of the vegetative nervous system accompanying psychoses, and also as additional evidence that psychoses represent changes in the entire individual rather than abnormal functioning of the brain or central nervous system as was formerly believed.

In conclusion I might say that it seems evident that certain definite physiological visceral changes accompany and are intimately associated with different types of psychoses, and furthermore that it seems probable that the so-called normal variations and even some conditions believed to be pathological may be due in part to mood variations or other tendencies towards psychotic states in the normal individual.

DISCUSSION.

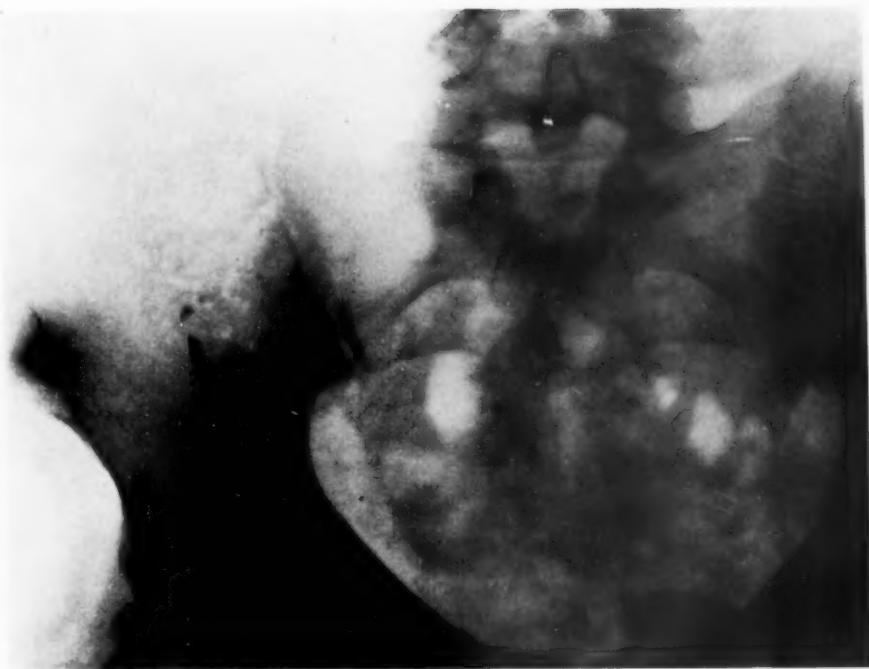
DR. WM. A. WHITE.—The paper has been of very great interest to me, because so far as I know, it is the first attempt to study visceral changes coincident with psychological changes. I have felt for a long time that here was a very fruitful field for study. I do not think I have any delusions about the simplicity of the interpretation. Undoubtedly a great many factors are involved not only due to psychological changes, but probably adrenal capacities, and all sorts of things, metabolism, etc. The association of increased tonicity with manic states, decreased tonicity with depressive states, is just what one would expect to find. The association of practically a normal condition in *præcox* of five years' duration is also what one might expect to find, because in that five-year period the *præcox* has reached an adjustment in the institution, and he is no longer keeping up the conflict. That represents in my mind what seems to be of fundamental importance in visceral changes. It seems to me when the tonicity is plus, it is a fair guess that the patient is still in the fight, and when the tonicity is minus, it seems pretty sure that he has, for the time at least, given up the fight. The excitement is characteristic of that part of the phase in which the patient resumes the attack. So that with the increased tonicity we still feel that the patient has some fight in him, and with the decreased tonicity we feel he is in danger of failure. One other thing, I think, is of significance, and that is not tonicity alone, but the fact that these visceral changes take place in the various parts of the gastro-intestinal system. We find hypo-tensions with long retentions and considerable increase in size of the viscera. The lower bowel and the cæcum are typical of involutional melancholiacs. They have a considerable component of hate in their reactions. They are frequently actively suicidal. We know that those suicidal attempts are hate reactions where one aspect personality directs against another aspect. It is exceedingly interesting to us who have associated these very types of visceral tonicities with as definite types of response at the psychological level. I am tremendously pleased with the paper that has been presented.

DR. STRECKER.—I want to ask whether the selection of the five-year period was an arbitrary selection, because I think while there is no question that dementia *præcox* has an acute stage and a stage of adjustment, I think that acute state must be judged from the clinical manifestations rather than its course. It may be an extremely short period in some cases. Of course, it may go beyond even the five-year period but this is uncommon.

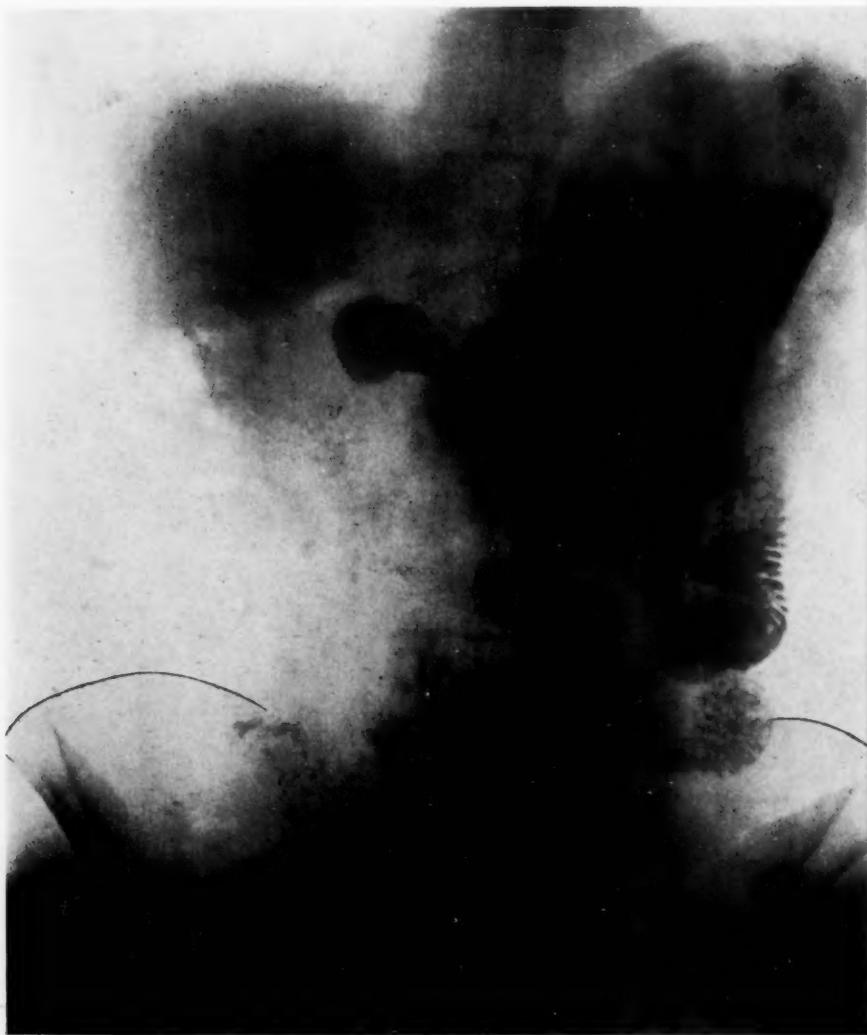
DR. HENRY (in closing).—I am grateful to Dr. White for what he said about tonicity, but the more striking thing to me is the variations in motility. At least that seems to be the easiest thing to demonstrate.

In regard to Dr. Strecker's remarks, these are general averages, and as I have only had a chance to make this study during the last nine months in a rather small hospital, anything other than general averages was not feasible.

AME



CASE 1.—M. D. Excitement, age 46. No history or other indications of appendicitis. Retained barium in appendix for at least 51 days.



CASE 2.—M. D. Excitement, age 39. Stomach hypertonic and three inches above iliac crests in spite of fact that patient was 24 lbs. underweight and had slight abdominal relaxation.



CASE 3.—M. D. Depression, age 48. Stomach atonic and one and one-half inches below iliac crests. Patient 33 lbs. underweight and had slight abdominal relaxation.



CASE 4.—M. D. Excitement, age 21. Colon has good tone. Patient is 13 lbs. underweight and has no abdominal relaxation. Barium entirely passed at 48 hours.



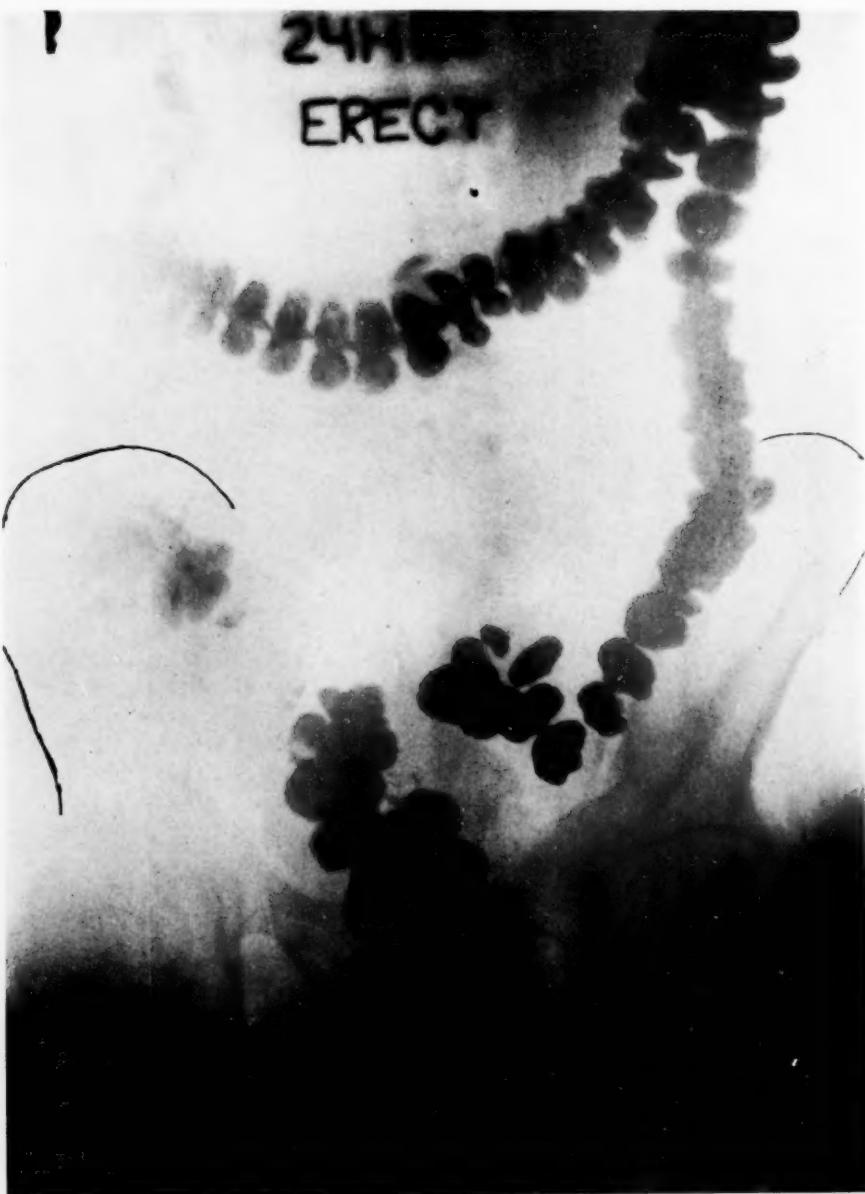
CASE 5.—M. D., Depression, age 48. Colon filled with barium 72 hours after meal and much poorer tone than in case No. 4.



CASE 6.—M. D., Depression, age 48. Rectum much distended 12 days after barium meal in spite of an enema and daily laxatives for six previous days. Patient did not complain especially of constipation.



CASE 7.—Psychoneurosis-psychasthenic, age 52. Spastic descending colon. High position probably due to 35 lbs. excess weight.



CASE 8.—Catatonic D. P., age 29. Hypertonic colon in high position, but pelvic colon is still filled with barium five days after the meal.

PSYCHIC MANIFESTATIONS IN MIGRAINE.*

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That psychic manifestations occur in migraine has been recognized for years. However, the transient character of these manifestations and the infrequent need for institution study or care has tended to restrict psychiatric information on the interesting phase of this condition, and the psychic phenomena so often overshadow the headache that the underlying cause is not recognized. Moreover, the range of normal behavior is so wide that limits are not readily established, and the milder psychic reactions are overlooked. The psychic findings in a thousand cases of migraine observed at the Mayo Clinic are, therefore, reviewed here.

REVIEW OF LITERATURE.

Hall, in 1849, noted the relationship of sick headaches to psychic disturbances, such as stupor, delirium and unconsciousness. Lieving, in his excellent review of the subject in 1873, tabulated 67 cases of migraine; in 21 of these "emotional and intellectual disorder," such as confusion, impaired memory, depression, ill humor, drowsiness, terror, and so forth, were noted. Mingazzini coined the term "dysphrenia hemicrania transitoria" to describe these psychic alterations, and classified them as abortive, transitory, or protracted. Flatau considers that migraine psychoses are an entity, and not to be confused with epileptic equivalents. In his study he found that the confusional states (*Dämmerzustände*) are the most commonly associated mental changes.

GENERAL CONSIDERATIONS.

In defining migraine we have adopted a modification of Buchanan's excellent definition. It is an hereditary affection characterized

* Read by title at the seventy-ninth annual meeting of The American Psychiatric Association, Detroit, Mich., June 19, 20, 21, 22, 1923.

by paroxysmal attacks of pain, usually in the head, either unilateral or bilateral, but occurring also in other parts of the body, and, as a rule, associated with nausea, vomiting, disturbances of sight, and many vague somatic disturbances of varying degree, and often accompanied by psychic manifestations which may at times dominate the entire picture. One or all of the symptoms may occur in a single attack, and the attacks may vary widely in severity.

Whether or not there is a so-called migraine constitution remains an open question. As early as 1834, Tissot, and more recently Buchanan, have pointed out that one is dealing here fundamentally with a biologic character, transmitted as an hereditary quality, and not affected by any mode of trephining. At times the hereditary character of the affection is not clear because of the transmission of the biologic character through a heterozygote. Buchanan, in his study of 127 migrainous families, established the fact that the affection is transmitted as a simple mendelian character. Fig. 1 shows the family tree of a typical case of migraine. If one speaks of a migraine character, one means an inherent factor which becomes part of a person, and which may manifest itself in numerous ways. The study of this character is a study of the entire life cycle of the patient, and the first evidence of this character may be the cyclic vomiting of infants, the impulsive acts of children, or the nightmares and somnambulisms which often occur as precursors of migraine, as also of epilepsy. At the opposite end of the life cycle the periodic depressions, or migraine neuralgias, not infrequently are substituted for the headache.

The frequency with which these psychic manifestations occur is difficult to determine because of the very transient nature of the affection, the wide range of possibilities, and the difference in interpretations of the phenomena. A single psychic episode may thus manifest itself in a person accustomed to migraine, and in due time be lost sight of. It seems fair to assume that from 15 to 26 per cent of migraine patients present at some time definite disturbances in the psychic sphere. Of the 1000 cases of migraine reviewed here, 15 per cent had mental symptoms, either directly associated with the attack, or in some manner related to the condition. As we have had to rely on histories and short periods of observation, we undoubtedly have overlooked many psychic reactions, and the fre-

quency of mental changes is probably more common than our figures show.

It must be remembered that many difficulties present themselves in determining the relationship between psychic manifestations and migraine. Every case of periodic headache is not a migraine, but may be symptomatic of some underlying condition; this is

CASE NO. A 63052. HEREDITARY CHART IN CASE OF MIGRAINE.

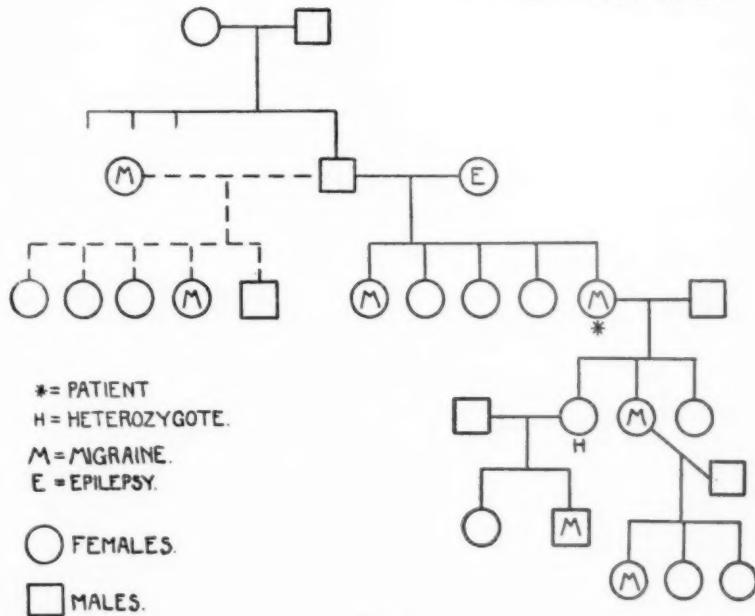


FIG. 1.

especially true in pituitary and frontal lobe lesions. On the other hand transient psychic manifestations must be studied with the migraine possibility in mind, as not infrequently the mental phenomena entirely mask the migraine picture.

TYPES OF PSYCHIC DISTURBANCES.

In the group of 150 cases with psychic disturbances, the most common complaint was a mild mental and physical depression, a sense of apathy, dullness, drowsiness, fatigue, lack of energy,

anxiety, general distress, and fear of impending trouble. In twenty-two of these cases the psychic disturbances were so profound that they might well be considered as transitory psychic episodes. In Table I we have attempted to tabulate the psychic manifestations which occurred in this group of 150 cases. It will be noted that

TABLE I.

ANALYSIS OF 150 CASES OF MIGRAINE WITH PSYCHIC MANIFESTATIONS.*

Depression	Hoplessness	Despondency	Fatigue, mental, physical, or both	Drowsiness	Irritability	Restlessness	Elation	Confusion "Dämmerzustände"	Delirium. Stupor	Unconsciousness	Anxiety states; fear, terror	Hallucinosis	Acute maniacal states	Recurring depressions	Depression suicide	Behavior disturbances	Automatism. Dual personality	Amaurosis	Mental deterioration	Psychalgia
XLVII																				
13	XXVII						1			2	1									
11		XXIII								3										
							VI ¹					1								
3							XII ⁴	1	1	1			1		1			1	1	
2								2	V ⁵	1	1					1				
4	2	3							XI ¹							1				
1																				
							1	1				II ²			1	1	1			
2												II ²	1							
2		2											VII ³	1	1					
	1									1					II ²					
2	2																VI ²			

* Roman numerals indicate chief psychic disturbance; Arabic figures indicate secondary or associated phenomena; Arabic figures with Roman numerals indicate number of "transitory psychoses."

almost every primary "feeling quality" is present in some instance, and the types and combinations of reactions are endless. It may be understood that psychic disturbances in any group of patients will vary just as personalities vary. Each individual is prone to have certain mental symptoms repeat themselves in recurring attacks. However, a disturbance which is prodromal in one patient may be associated with the attack in another patient.

For purposes of description, one may divide the psychic manifestations into four large groups: those occurring (1) during the prodromal period, (2) with the attack, (3) as equivalents, and (4) as associated phenomena. It must be understood that there is no hard and fast line between these groups, as an equivalent may occur during any phase of the attack, or the psychic changes may entirely replace the headache. Moreover, the psychic disturbances may vary from one attack to another.

I. PSYCHIC CHANGES OCCURRING DURING THE PRODROMAL PERIOD.

The milder psychic manifestations associated with the prodromal period are familiar to us all. Occasionally there is a premonitory period with an excessive sense of well-being. Usually the person wakes in the morning feeling dull or apathetic, with a sense of impending trouble. Lieving was of the opinion that the psychic manifestations occurred chiefly during the prodromal period, and attempted to divide the phenomena into two types: intellectual and emotional. The "intellectual" phenomena included impairment of memory, confusion, incoherence, tumultuous ideation and very rarely hallucinosis; the "emotional" consisted of depression, feelings of anxiety and dread, and so forth. This division is theoretically true, but there is such a marked variability in the type of reactions that such definite classification is impracticable.

Grasset and Rauzier have attempted to classify the prodromal phenomena as the excited and depressed types. This is probably as satisfactory a subdivision as one can formulate. The degrees of depression and excitement vary greatly, and there is no line of demarcation between the milder and more profound manifestations. In the more severe alterations, we find the same tendency to variations as in the milder forms.

In the excited type there may be marked restlessness, irritability or a change in personality. The patient may become verbose, talk carelessly, have a feeling of exhilaration, and for the time being nothing seems impossible. Such a period of exhilaration is sometimes followed by a depressive phase. The latter is likely to come on with the headache, and may last for from ten minutes to several hours, or even for an entire day.

In the depressed prodromes, the patient usually has a foreboding of impending trouble. Physical fatigue and apathy may accompany the psychic depression. The thought processes become slow, ideas are confused, and the individual feels unable to express himself coherently. From this stage, many alterations occur, and as the headache sets in, stupor, delirium and even unconsciousness may supervene.

The psychic prodromes do not appear to be influenced by the severity of the migraine attack, or the association of physical phenomena, such as hemianopsias, parasthesias, or palsies. The manifestations thus far enumerated are well known to us all; at times, however, they may assume a more severe nature, and not infrequently suggest an epileptic attack. The following case is of this type:

CASE I (A338207).—A man, aged 42 years, had had periodic sick headaches associated with scotomas, nausea and vomiting, since the age of four. There was no history of migraine in the family. In July, 1918, he awakened a friend by talking in a natural voice of happenings of the day before. He was lying limp in bed, and could not be aroused, but had no convulsions. After about 20 minutes he regained consciousness, was extremely nauseated, and for two or three days had a severe bitemporal headache. In June, 1920, a similar attack occurred during the day, in which he suddenly, while walking, became confused in mind. This state lasted for about ten minutes, and was followed by nausea, headache and vomiting for the greater part of the day. In July, and again in August of the same year, he had spells of a similar character with a sudden lapse of memory, lasting for from five to 20 minutes, and followed by nausea, headache, and vomiting. From that time up to the present, he has had several attacks in which he has even fallen, but has never had convulsions. The attacks are always followed by nausea and headache, and usually by vomiting. The general and neurologic examinations were negative.

Various aura, such as visual, olfactory or sensory, may be the only prodromal manifestation of sudden transient psychic disturbances, which may or may not be associated with headache.

2. PSYCHIC PHENOMENA ASSOCIATED WITH THE ATTACK.

With the onset of headache, the picture, as a rule, changes rapidly. It is true that the pain may be so slight as to be overlooked, or the mental phenomena may continue uninterrupted, replacing the headache entirely. At times no mental signs occur prior to the onset of pain, and only appear as the headache reaches its height.

Most commonly, with the pain, exhaustion and increasing psychic disturbance prevail. There is no definite rule as to the occurrence of these manifestations, as a wild maniacal state may at once ensue. However, the most common disturbance is some phase of somnolence, which often varies from one attack to another, and is, as a rule, rapidly replaced by a clouding of consciousness, mental confusion, or so-called Dämmerzustand. During the clouding of consciousness, amnesia frequently occurs. Hallucinosis may appear, and the syndrome may be such as to warrant the term "transitory psychosis." With the increase of pain the mental abnormality is likely to become more marked, the patient talks incoherently and a mild delirium may appear. The delirium seems to be the result of the pain, which induces a stupor, in which the pain is felt as acutely as ever, but is not afterwards clearly remembered. Gowers reports the case of a girl, aged 23 years, who, while in her delirium, made strange statements of which she later remembered nothing. According to the same author, such a delirium may not only resemble the postepileptic state in its character, but its nature may perhaps be very similar.

One of our cases is cited in which marked mental confusion occurred with recurring transient hemiplegias.

CASE 2 (A280403).—A woman, aged 21 years, has had severe left-sided headaches since the age of 16, which were always associated with nausea and some vomiting. Her mother had had severe migraine, and in one attack an associated aphasia and weakness of the right arm. A brother was also subject to migraine; his attacks often began with numbness of the tongue and right arm, followed by severe headaches and delirium; in several spells he was unable to talk. During the past three years the patient has had frequent diplopia and slight impairment of speech with her headaches. Up to the present time she has had five severe attacks, associated with a transient right hemiplegia, lasting from two to five days. Usually she has a feeling of fatigue, apathy and marked drowsiness before the severe attacks. As the headache begins, a sense of confusion develops, and she may be unable to talk coherently.

Examination shortly after one of these attacks showed a slight residual paralysis of the left external rectus, a mild speech defect, and weakness of the right arm. Several "purpuric" spots, about the size of a finger nail, were noted on both legs. Examination of the blood, spinal fluid, and fundi, and roentgenograms of the head and chest were negative. After leaving the Clinic, the patient continued to have migraine headaches, and had at least two attacks of hemiplegia, in each of which the same purpuric spots were noted, and in one of which a large slough occurred. During the

last hemiplegic attack the patient died, the cause of death being given as cerebral hemorrhage.

Comment.—This interesting case suggests a possible vascular etiology, as noted by many observers, but whether the purpuric spots should be considered as evidence of a hemorrhagic diathesis is difficult to say.

It is not essential that a case go through all of the various stages enumerated here, for one type of disturbances, such as delirium, stupor, or somnolence, may occupy the entire period of attack. The stupor may become so profound that unconsciousness supervenes; it must therefore be borne in mind that unconsciousness does not rule out the migraine, or establish a criterion for epilepsy.

The duration of the psychic manifestations associated with an attack varies considerably. They may last for several hours, for the entire duration of the headache, or be of very short duration. They are usually relieved, as is the pain, by the nausea, vomiting and sleep. Occasionally the psychic changes, like paralytic changes, may persist for some time after the attack.

Marked anxiety and terror often occur during an attack, and even hallucinosis and phantasy formation may be associated, although these are apt to occur independently. Determann reports a case in which auditory and visual hallucinations were associated with the attack. Curshmann, Mingazzini, Krafft-Ebing and Mitchell have also described hallucinatory attacks, associated with clouded states. Memory is clouded during the attack, but events may be fairly well retained. As a rule the hallucinosis is of a mild character and produces but little reaction. In one of Mitchell's cases the headaches were at times accompanied by an apparition. A tiny dwarf, one, inch high, appeared at a great distance. He gradually drew nearer, increasing in size, until a gigantic gladiator stood before the patient. During this time, which consumed about an hour, the headache increased in severity. The giant would strike the patient on the head, and unconsciousness with a convulsion followed. Mitchell described several other cases with apparitions of unusual character. One woman, during the headaches, was often aware of a large, black hairy dog by her left side. Mitchell also described a case with olfactory hallucinations, a smell of violets occurring at the height of the attack. We have seen several cases both in children and adults in which, either during the prodromal period, or with the attack, shadows, faces, or vague visions occurred, and even peculiar, unnatural ideas.

Transient Manias.—Closely allied to the anxiety states are the transient maniacal attacks, which may be associated with the headache, or occur as an equivalent. Such acute transitory manias are well recognized in the epileptic, and there seems little doubt that similar conditions may occur in migraine. Under migraine Mosher described cases of mania transitoria, and recognized in some of these acute manias a larvated or masked epilepsy, sometimes presenting characteristics of migraine. He also considered epilepsy and migraine as expressions of the same disease. Maudsley has reported several cases of acute transitory mania without any convulsive attack, and refers to the condition as neurosis spasmodica. Meyer states that patients with this condition rarely enter a hospital because of the short duration of the attacks. He doubts if one can definitely classify the cases, but calls attention to their close relationship to epilepsy. Echeverria, as early as 1873, insisted that search for headaches and convulsions be made in any crime characterized by instantaneity, fierceness and brutality. The degree and severity of the maniacal attack is as variable as are personalities. A mild euphoric excitement, or a violent outburst of confusion and furor may be present. The following case is a rather striking example of such a condition:

CASE 3 (A422082).—A man, aged 30 years, had had daily severe headaches for one week when he was 12 years old. His mother and sister had slight headaches, but not a typical migraine. From 12 to 17, the patient had had periodic attacks of swelling of the upper lip, associated with itching, and lasting from one hour to a day. Since the age of 17 the swelling has not appeared. At the age of 18 he had one severe attack of headache, and at 23, he began having dull headaches associated with blurring of vision and vomiting. Each spring, for several years he has had spells of vomiting associated with vertigo, lasting from one to two weeks. At 25, he found himself asleep one morning on the springs of the bed. He was told he had thrown his sleeping partner out of the bed, removed the bed clothing, and returned to sleep on the springs. Short periods of irritability ensued. In the fall of 1918, he had a rather constant, dull, right temporal headache, with severe daily exacerbations of pain which might even wake him up at night. These would cause him to yell, things would blur before him, and he could hardly think. At times he passed into a state of confusion with reckless impulsiveness. Since then he has had similar attacks once or twice yearly, usually lasting about one week; in the interval he is well, except for some dull right-sided headache. During one of these periods, in July, 1922, the patient became confused, and had a lapse of memory for one hour. In January, 1923, he got out of bed, seemed confused, wandered

out in the cold, froze his feet, and cut his body by walking into a barbed wire fence. Following both of these spells, he vomited. A recent attack occurred on April 8, 1923. The right-sided headache gradually grew worse, his mind became clouded, he talked incoherently, and cried because of severe pain. The headaches recurred daily for a week, usually coming on at about 8 to 10 a. m., and subsiding about 4 p. m. During this time his mind always became clouded, and he would yell out and become threatening, because of sharp paroxysms of pain, which he called neuralgia. Since the first spells of irritability, in 1918, he has had transient euphoric attacks lasting from five to 10 minutes, during which he was unusually demonstrative. He also had momentary spells, during which he would feel like jumping up and screaming, wanting to crush his head, or kill whatever was in his sight; for the moment he would be unable to control himself. He also has had nightmares occurring about once a week; during these he has a prolonged sinking feeling, and at times a sensation of flying, sometimes slow, and again fast. He usually wakes up crying, with a peculiar feeling. During the day he sometimes has sensations of this type, but is usually able to fight them off. Between attacks he is a hard-working, industrious farmer. The general and neurologic examinations were negative.

Changes in Personality.—A transient change in character may occur during an attack. Naturally any psychic change from the normal may be so construed, but special interest lies in the definite changes in personality which supervene. It frequently appears that during an attack a certain release of normal inhibition takes place, and a most upright person suddenly shows a complete transformation, and commits acts of social depravity. Occasionally, when the headaches are frequent, the character manifestations may persist during the interim. The following case report is an example of this change in personality, associated with automatism:

CASE 4 (A420891).—A woman, aged 28 years, has had frequent epistaxis since she was very young. Her mother had migraine headaches. Four years ago the patient developed a dull, left frontal headache, which has been constantly present since then, with periods of marked exacerbation. Various operations were performed on the nose without relief. Two years ago, she had a momentary taste of ether during a severe headache. About this time marked spells of vertigo began, associated with the severe headaches. The patient was in bed for a week because of constant dizziness and rotation of objects. Since then she has had similar attacks, once or twice monthly, and lasting for from two to four days; if severe, she is confined to bed. At the present time, although she is always conscious of dull headache she rarely has an exacerbation without the vertigo and roaring in the left ear "like Niagara Falls." As the vertigo subsides, the noise in the ear gradually fades away. It has been noted, especially by the family, although the patient is aware of the fact, that a change has occurred in her person-

ality. Formerly quiet, she is now restless and irritable, and wants to be "on the go" all the time. In November, 1922, while in the grasp of a severe headache, she went by street-car to a neighboring town and tried to pass a check for \$2000. She was taken home by friends without memory of the act. Since then there have been several episodes of a similar nature. She forged her father's name on a \$75 check, and has taken money from several members of the family. With this change of character, she shows a tendency to prevarication. When the headaches are very severe, she is confused, and imagines things to be transpiring about her, such as relatives coming into the house, and so forth. If she is called on the telephone, she will refuse requests, or if she consents to them, insists later that she has not done so. Following these attacks, which do not occur regularly with headache, memory is not clear for past events. During the past year and a half she has had scintillating scotoma, usually occurring before the severe headaches. The general examination was negative. Neurologic examination was negative except that the Barany showed all responses increased.

Associated with an attack, automatisms may occur, as was noted in Case 4, but because of their peculiar interest, it is well to discuss them under the heading of equivalents.

3. *Psychic Equivalents*.—In considering the psychic equivalents of migraine, one encounters many difficulties of classification. The term is here employed to designate a mental state which is of equal significance with the pain. The headache may at times be entirely replaced by the psychic manifestations, but more often the mental phenomena are in a sense equivalent to the physical manifestations, the headache being present to a certain degree at some period of the attack. Psychic equivalents are comparable to other equivalents of migraine, such as the abdominal crises. The outline given by Stoddart for epileptic equivalents may quite properly be employed in a discussion of the migraine equivalents. Under this heading he includes the equivalents of depression, ill humor, excitement, confusion, delirium, stupor, automatism, and double personality. To this classification we have added the interparoxysmal psychic equivalents mentioned by Flatau and Bing, and also behavior disturbances, such as compulsions, or pathologic stealing.

We have already discussed the psychic manifestations characterized by depression, excitement, confusion, delirium and stupor. As these are all of so varying a degree, whereas the headache is usually a fairly constant factor, it seems proper to discuss them in connection with the attack. Interparoxysmal psychic manifestations, such as tendencies to depression, eccentricities, failure of memory, and

incoherent spasmodic thinking, have also been observed in our series. When one realizes the vagaries of migraine, there seems every reason to believe that these interparoxysmal mental changes are an index of the innate constitutional make-up. It is possible that many of the peculiarities which are ascribed to certain persons, such as occasional vague visual phenomena, mild recurring headaches, and apathy, periodic mental dullness, or other periodic mental fluctuations, are larvated forms of migraine. It is also true that the headache in a migraine attack may be replaced entirely by a visual aura which, in turn, is followed by a psychic disturbance. The following case is an example of interparoxysmal attacks of depression:

CASE 5 (A413169).—A man, aged 39 years, has had migraine since youth. Since childhood he has also had periodic "depressive" attacks, occurring about three times a year, though not regularly. There is a definite history of migraine in the family. For about one to two hours prior to the onset of depression, the patient feels exhilarated, "full of pep," and would like to take a crack at Dempsey. Everything is bright, and he "takes no talk from anyone." Gradually a change occurs, a heavy feeling creeps over him, his shoes seem to fill with lead, his limbs tire, and every movement is an effort. Within an hour he becomes so fatigued that he can hardly drag himself about and would make "no special fuss if a nigger spat in his face." With much effort he is able to continue his work, if necessary. He does not know how long a spell might continue as he makes an effort to get a hot bath, move his bowels, and sleep as soon as possible. He wakes up feeling well. His mind remains clear, but he would much prefer not to exert himself mentally or physically. These spells have no relation to the headache, but he has discovered that he feels much better when in the dark and quiet during the depression. The general and neurologic examinations were negative.

Among the psychic automatisms is a most interesting group of reactions with essentially the same characteristics as in epilepsy. At times it is impossible to determine definitely whether one is dealing with an epileptic or migraine automatism. Tissot, as early as 1834, recognized these psychic equivalents. Lieving reported the case of Dr. Spaulding who found that he could not write what he wished to; for one-half hour his mind was in tumultuous disorder, and he found himself unable to write even a simple sentence. Krafft-Ebing, Bryce, Mingazzini and others have also reported cases of automatism. Mosher reported the case of a youth of 21, with a migraine history, who had momentary unconsciousness

at the onset of the psychic disturbance. He classified the case as mania transitoria, and epileptiform migraine. While this is probably proper, it seems unnecessary to draw such an arbitrary line when it is understood that a person afflicted with migraine may develop unconsciousness. As in the epileptic, only one or two episodes of automatism may occur in many years of migraine. The duration of the automatism may vary from a few minutes to several hours, or an entire day. Longer periods are rare, although a few isolated instances have been reported. Painter describes the case of a man of 42 who had had typical migraine since youth. At times with his attacks he had mental pictures of another time and conversation, and seemed to be both living and talking in the past, and at the same time perfectly conscious of the fact that he was living and talking in the present. Another patient, an accountant, aged 39 years, had, besides his typical migraine attacks, slight attacks of vertigo, during which he was conscious of the fact that he was adding two columns in place of one (the one before him and the other in his mind); the fictitious column always was composed of fives or multiples of five. He would finish both columns at the same time, would write down correctly the answer of the real column and be equally conscious of the correct answer of the imaginary column. After a time he would feel pleasantly warm, would urinate a great deal, and then feel quite well again. Burnett reports two cases of dual personality in inbred migraines, giving the family tree in each case. He believes that the inbreeding of migraines tends to make the condition more severe, and leads to mental deterioration. In one of his cases, two attacks of dual personality occurred, lasting six weeks and eleven days respectively, and associated with amnesia. Cases 3 and 4 present such features, and the following case is also of this type:

CASE 6 (A421962).—A man, aged 43 years, has had periodic headaches since youth. The family history is negative for migraine, although a brother has a condition somewhat similar to that of the patient. The patient's headaches are relieved by vomiting and sleep. During early years they were associated with occasional scotomas and parasthesias. Between the age of 25 and 30, he was practically free from headache, but since then the attacks have been more frequent, and during the past six months have occurred almost weekly, and have lasted from three to four days. Since youth he has also had spells of fear, coming on usually when feeling his best, unassociated with headache, and lasting for about one half hour,

the fear being an inexplicable sensation without any tangible factors. At about the age of 26, the spells of fear became less frequent and less severe, but a new type of mental phenomena appeared. His mind would become suddenly confused, and peculiar vague ideas which he could not grasp would flit through his consciousness. Such an attack would last about 15 minutes; during this time he felt unreal, and blurred visions would pass before him. Usually he would be able to continue his work during such an attack, but only with considerable effort, and he was very apt to make mistakes. For years these attacks occurred as isolated episodes, but during the past few years they have invariably followed the headaches, or have come and gone during the period of a headache. A general physical and neurologic examination was negative.

Behavior Disturbances.—The next group, that of behavior disturbances, is also of extreme interest. Here, too, the relationship of the psychic disturbance to the headache may be variable, and not infrequently the headache is entirely overlooked, or is only brought out by obtaining a careful history. The behavior disturbances that we have noted most frequently are impulsiveness, compulsions and pathologic stealing. Headache is often associated with compulsory acts in children, especially if there has been a psychic struggle to overcome the compulsion, but here the periodicity of the act and the associated headache seem to establish a definite relationship. Morbid personalities and recidivists, especially among children, will resort to headaches as a means of sympathy, but, as a rule, one should have little difficulty in distinguishing these cases from true migraine. The following is a good example of this type:

CASE 7 (A294186).—A boy, aged 15 years. When he was one year of age his mother noticed that he was irritable; this irritability gradually increased and usually lasted several days. The mother had periodic headaches, not especially characteristic of migraine. At the age of 12, the boy was found to be stealing, and he made no special attempt to cover up his thefts. He usually took money, but once took a watch. He always remembered what he had done, and only stole during spells of irritability, which occurred about every two weeks. During these spells, he was nervous, ill-behaved, and irritable, wishing to be alone; often he went for long walks. Usually he realized within half an hour that he had done wrong, was sorry, and wanted to make good his act. When the impulse came, he tried to deviate his mind by doing something else. The things he took were articles which he had seen put away, and he had an irresistible impulse to take them. He rarely took things because he needed them. Following such a spell, he would have a throbbing pain in the head, usually left-sided. All symptoms passed away after sleep. Both the general and physical examinations were essentially negative.

In another case, a boy, aged 10 years (Case A315120) pathologic stealing manifested itself at the age of six. His antisocial acts were distinctly periodic in nature, but it was not until the age of 10 that he began to develop headaches of any type.

While it is common for migraine to begin as early as at six or seven years, it is much more common for the attack to have its onset between 10 and 14. However, preliminary attacks of nausea or vomiting may be present, and it seems more than likely that periodic behavior disturbances may also be precursors of migraine.

4. *Associated Phenomena: Epilepsy and Migraine.*—In reviewing the associated phenomena of migraine, the relationship of migraine to epilepsy is most evident. This relationship is in itself a study, and can only be touched on here. Practically all authorities are inclined to recognize the close relationship between migraine and epilepsy, and they maintain that the borderline between these two afflictions is extremely hard to define. It is true that, as a rule, migraine does not show a progressive tendency, or degenerative symptoms, whereas epilepsy does. This, however, does not appear to be sufficient ground for a sharp differentiation. Seventy-five per cent of 128 epileptics studied by Buchanan had a migraine strain in their ancestral or personal history. Fourteen per cent of his cases of epilepsy had migraine first, alternated with, or continued with the epilepsy. Ryther and Ordway, in a study of 100 cases of epilepsy found that 12 per cent gave a family history of migraine, while Walker found that 14 per cent of his migraine cases developed epilepsy. It is essential that these two conditions be kept constantly in mind when discussing either one, and it is my opinion that the relationship is even closer than these figures would lead one to believe. Certainly in children a migraine epilepsy complex may occur, and it is very difficult, if not impossible, to state which condition will supervene. We often see migraine replaced by epilepsy, especially in the adult, and a change in either direction may occur. Gowers reports an interesting case of a patient who as a child of seven had attacks of micropsia; at 15 migraine appeared; at 20 epilepsy replaced the migraine, and continued for a short time, after which migraine attacks again supplanted the epilepsy. Gradually all symptoms disappeared. It is because of this interchangeability that the question has rightly been asked: "Can migraine be epilepsy without

the convulsion?" With this alternation of migraine and epilepsy in the same individual, a diagnosis of the psychic manifestations, whether migrainous or epileptic, is very difficult. Gowers has pointed out that somnolence in migraine may be confused with epilepsy, and he reports the case of a boy of eleven who, with his headaches, had periods of sleeping for several hours. Associated with the headaches there was tingling of the lips, and difficulty in speaking. These manifestations not infrequently give rise to the term "mental epilepsy," which is a sudden transitory psychosis in which convulsions are not noted, but in which there is facial pallor and flushing, indicating that a petit mal attack has occurred. Attacks resembling petit mal are also noted with migraine attacks in which there is pallor and facial twitching. It is, therefore, easy to see how difficult a problem confronts us. Echeverria speaks of intellectual aura in petit mal; at times the same idea or hallucination appears spontaneously at the onset of each attack; the patient sees flames, fiery circles, red or purple objects, a ghost or phantom, he hears bells, or a voice uttering the same word, or may be conscious of a certain smell (the smell of violets, Mitchell's case, and in one of ours, the smell of fish). These are also phenomena within the scope of the migraine attack. It is to be recalled that while frank epilepsy and frank migraine may stand at distant terminals, the less marked forms of either condition gradually merge into one another and certainly suggest the possibility of a similar ground-work.

Hysteria and Migraine.—While hysterical manifestations are commonly associated with migraine, it is incorrect to assume that migraine is a sign of hysteria. Psychic manifestations of an hysterical nature may appear with an attack of migraine; however, the interparoxysmal period should determine whether the psychic phenomena are of an hysterical nature, or definitely related to the migraine attack. It is true that, by its very nature, a migrainous make-up tends to hysterical disturbances, but, on the other hand, an hysteria may readily simulate a migraine. It is here that one might well say, "Ill fruit has ever grown from evil soil." At times it is practically impossible to determine the dominating factor. Cases with this combination of hysteria and migraine were observed in our series.

What has been said concerning hysteria holds true for the other neuroses. Many persons go through years of migraine attacks with-

out any special psychic disturbances, but an added responsibility or anxiety precipitates a profound neurosis. This is especially true in cases in which the idea of a brain neoplasm obsesses the individual, and in which repeated decompressions are performed without relief.

Although the usual psychic phenomena are of a mild character, profound mental disturbances do occur. This is especially true at the menopause when periodic depressions associated with somatic complaints are often substituted for the subsiding migraine attacks. We have had one case of severe persistent migraine, or status hemimanicus, in which the patient, because of the constant pain, became profoundly depressed and committed suicide.

Neuralgias.—Facial neuralgias, as also other pains, are not infrequently associated with migraine, especially in the adult, and the term "migraine neuralgia," or "psychalgia," may be properly used to designate this condition. Severe psychalgias of this type have persisted following such extensive operations as gasserian ganglion resections:

CASE 8 (A63052).—A woman, aged 45 years, with a definite history of migraine in the family, had had sick headaches since childhood. They were associated with vomiting, and relieved by sleep. When she was about 49 or 50 the headaches gradually subsided, and at 54, with cessation of menses, a new pain developed. This was of a stabbing character, lasting from a few seconds to 10 minutes. It was localized in the left lower jaw, and was almost constant. In 1914, having had 35 injections of alcohol in all, she had the posterior root of the gasserian ganglion resected. This operation produced a complete anesthesia of the entire left side of the jaw, which has persisted to the present time. On the tenth day after the operation, the sharp jabbing pain recurred, and aside from the suffering, destroyed her courage. From then on up to the present time she has suffered continually. Besides the sudden sharp pains there is a constant burning sensation which at times is made more severe by an added throbbing. In December, 1922, applications of cocaine to the sphenopalatine ganglion gave some relief, but it was found that application of water would produce the same results. A month later the pain, while somewhat better, was still present. Except for total paralysis of the left fifth nerve, there were no special findings in either the general or neurologic examinations.

DISCUSSION.

That there is such an entity as a migrainous psychosis is doubted by many. Jelliffe does not seem willing even to recognize a migrain-

ous constitution. Certainly psychoses are associated with migraine, and interparoxysmal psychic episodes occur; however, it is difficult to establish the exact ground-work for such a relationship. It is rather rare for psychosis to be precipitated by a migrainous attack, but such a sequence of events has been noted, especially in cyclothymic personalities in which the periodic depressions appear to be definitely related to the migraine attacks.

CASE 9 (A419172).—A man, aged 31 years, has had periodic headaches since the age of 18, associated with depression, restlessness, inability to keep his mind on his work, and general anxiety. These last about 24 hours, and are relieved by vomiting. His father was a periodic drinker; one sister is dead, and one has migraine. In the past eight years the patient has had five periods of depression, lasting from two to six months each, characterized by mental and physical retardation, marked lack of confidence, slowing of thought processes, and suicidal ideas, but no pressure of activity. He has usually been able to work during the greater part of the attack. Headaches of an ordinary type have seemed to precipitate certain attacks, and have continued unaltered through the seizure. The general and neurologic examinations were negative.

Whether other periodic conditions are related to migraine is still uncertain. It would seem, however, that periodic drinking might be accounted for as logically on the basis of migraine as on an epileptic basis. It is undoubtedly true that heredity plays an important rôle in the migraine make-up, and that biologic taints of other types are not infrequently incorporated in this transmission. Whether or not delinquencies are more frequent in migrainous children than in others would be an interesting field for investigation.

Aphasic disturbances might also be considered in this group of mental phenomena. It seems advisable, however, to discuss them with the neurologic disturbances, even though speech disorders are often associated with psychic difficulties.

In our entire group of cases only one patient showed any evidence of endocrine disturbance. This was in a woman of 34, with a metabolic rate of -14. With the improvement in rate under thyroxin, the migraine appeared to be distinctly diminished. This case is not cited to show that an endocrine basis is etiologically present, but rather to emphasize the rarity of an endocrine origin.

Our present state of knowledge, or lack of knowledge, compels us to leave the question of etiology and therapy for further study.

It is evident that a very definite biologic factor is present; but its nature we do not presume to know, and what its relationship may be to anaphylaxis is not in the scope of this paper to discuss. Menstrual disturbances are notoriously common with migraine, but in our hands, treatment directed toward either condition has been uniformly unsuccessful. The same may be said of pituitary disturbances. How much a pineal gland shadow signifies in a roentgenogram, we must leave unanswered. Personally, I should say that there is very little significance to be attached to such a finding.

BIBLIOGRAPHY.

1. Bryce: Quoted by Mosher.
2. Buchanan, J. A.: The mendelianism of migraine. *Med. Rec.*, 1920, xcvi, 807-808.
3. Buchanan, J. A.: The familial distribution of the migraine epilepsy syndrome. *New York Med. Jour.*, 1921, cxiii, 45-47.
4. Burnett, S. G.: Two cases of dual personality in inbred migraines. *Proc. Alienists and Neurol., Am.*, 1917, vi, 140-146.
5. Curschmann, H.: Ueber einige seltenen Formen des Migräne. *Deutsch. Ztschr. f. Nervenheilk.*, 1916, liv, 184-205.
6. Determann: Casuistischer Beitrag zur Kenntniss der Migräne. *Deutsch. med. Wchnschr.*, 1896, xxii, 152; 171.
7. Echeverria, M. G.: Violence and unconscious state of epileptics, in their relations to medical jurisprudence. *Am. Jour. Insan.*, 1872-1873, xxix, 508-556.
8. Flatau, E.: Die Migräne und ihre Abarten. In: Lewandowsky, M.: *Handbuch der Neurologie*. Berlin, Springer, 1914, v, pp. 342-426.
9. Gowers, W. R.: Borderland of epilepsy. *Brit. Med. Jour.*, 1906, ii, 7-11; 128-131; 1617-1622.
10. Grasset and Rauzier: Quoted by Bing, R.: *A textbook of nervous diseases*. New York, Rebman Co., 1915, 481 pp.
11. Hall, M.: The neck as a medical region; hidden seizures; paroxysmal affections of the nervous system. *Lancet*, 1849, ii, 66-69.
12. Jelliffe, S. E. and White, W. A.: *Modern treatment of nervous and mental diseases*. Philadelphia, Lea and Febiger, 1913, vii, p. 166.
13. Krafft-Ebing, R. v.: Ueber Migräne-Psychosen. *Schmidts Jahrb. f. ges. Med.*, 1902, cclxxv, 252-253.
14. Lieving, E.: On megrin, sick-headache, and some allied disorders; a contribution to the pathology of nerve storms. London, J. and A. Churchill, 1873, 512 pp.
15. Maudsley, H.: Homicidal insanity. *Jour. Ment. Sc.*, 1863-1864, ix, 327-343.
16. Meyer, L.: Ueber Mania transitoria. *Arch. f. path. Anat.*, 1855, viii, 192-210.

17. Mingazzini, G. and Pacetti, G.: Studio clinico sulle psicosi neuralgiche (in sensu lato). Schmidts Jahrb. f. ges. Med., 1902, cclxxiii, 254-255.
18. Mitchell, J. K.: Headache with visual hallucination. Jour Nerv. and Ment. Dis., 1897, xxiv, 620-625.
19. Mosher, J. M.: Mania transitoria and epileptiform migraine. Albany Med. Ann., 1921, lxii, 255-276.
20. Painter, F. U.: Some peculiar mental phenomena in hemicrania. Texas State Jour. Med., 1909-1910, v, 383-284.
21. Ryther, Margherita, and Ordway, M.: Economic efficiency of epileptic patients. Jour. Nerv. and Ment. Dis., 1918, xlvi, 321-342.
22. Stoddart, W. H. B.: Mind and its disorders. 4 ed. Philadelphia, Blakiston's, 1922, p. 360.
23. Tissot: Quoted by Lieving.
24. Walker: Quoted by Flatau.

HISTOPATHOLOGY OF A FOCAL BRAIN SOFTENING.*¹

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The histopathologic findings in the following case are presented as a contribution to the somewhat scanty records of the changes that follow vascular lesions. They are not offered as an explanation of any particular form of mental disorder; they probably represent a complicating or terminal disease. The clinical history and anatomic picture suggest that there were a number of isolated cerebral insults due to occlusion of vessels of various sizes. Different stages in the process seem to be represented. The material was exceptionally favorable for this study, both for this reason and because some of the lesions were small and permitted sectioning without loss of the softened contents. As this study refers only to a single case the findings are described objectively and no speculations have been offered to explain the phenomena.

REPORT OF CASE

Clinical History.—S. R., a white woman, born in 1860, single, with a negative family history, was admitted to the Anna State Hospital in 1903, in a condition of exaltation with episodes of excitement and features that are described in the very meager records as hysteroid. She was allowed to return home in 1910, but stayed only one month before she was returned to the hospital where she remained until her death. She is described as quiet and seclusive; she did some house work in a mechanical way, but mixed little with others and spent much of her time alone playing solitaire. There were occasional brief periods of irritability in which she muttered to herself and did no work. While these facts suggest the possibility of a dementia praecox, they do not justify a diagnosis, and for our present purpose no attention need be paid to the psychosis. During the last four years of her life she lost weight slowly and irregularly, and, after 1920, had

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occasional syncopal attacks in which she became very pale and lost consciousness, but was not convulsed; after these attacks she is described as having been, for a time, very weak. During the last three years, there had been a gradual diminution in activity and efficiency in work.

June 1, 1922, she suddenly became weak and drowsy and then stuporous with subnormal temperature. There was no obvious paralysis and, when urged, she walked without assistance, but she did not reply to questions except with an unintelligible muttering. The following day she was better and was allowed to go out on the lawn. On the way back to the house she suddenly fell and again became stuporous; from this state she did not rally and the stupor gradually deepened to coma in which she died 17 days later. The pupils were dilated and did not react to light; the right arm and leg were flaccid; the left arm was slightly rigid and the left leg was "perhaps a little less flaccid than the right"; the knee jerks were not obtained and there was no Babinski sign; muscular twitchings were observed about the mouth and also in the left thigh when the limb was abducted. She died June 19, 1922, without any abrupt change.

Necropsy revealed well-marked chronic interstitial nephritis, and hypertrophy and dilation of the heart with chronic myocarditis. The brain was hardened in solution of formaldehyde and shipped to Chicago for examination.

Macroscopic Appearances.—The brain appeared normal except in the occipital lobes. The vessels at the base showed definite patches of atherosclerosis and were distinctly tortuous. In the left occipital lobe, the external surface was depressed, the convolutions were flattened and the sulci were largely obliterated; this region was covered with an opaque and intensely hyperemic pia. On section a large area of softening was disclosed which extended deeply into the white matter. In the right occipital lobe was a depressed area that occupied almost the entire cuneus and precuneus; it was covered with a thickened and wrinkled pia, beneath which was a roughly wedge-shaped area of softening that extended a short distance into the subcortical white matter, but was much more extensive on the surface.

Microscopic Appearances.—The focus of softening in the right lobe was sectioned for detailed study. In stained sections it was observed that, in addition to the macroscopic lesion, there were a number of small circular foci in the neighboring folium, both in the gray and the white matter, which stained very faintly.

Microscopically, the larger lesion presented for study three fairly distinct zones: a central region of complete softening (Fig. 1, D); a transition zone (Fig. 1, C); and a zone of demarcation (Fig. 1, B) which rather sharply delimited the diseased area from the neighboring normal tissue.

The zone of softening extended, in the center of the lesion, to the pia from which it was separated by a hypertrophic stratum zonale; elsewhere it was surrounded by the transition zone. At the apex of the wedge-shaped lesion, in the white matter, the softened area was separated from the transi-

tion zone by a cavity, which probably resulted from postmortem shrinkage as fragments of the cellular elements of the softened area were still attached to the transition zone on the outer edge of the cavity. All trace of nervous structure had disappeared from this zone, no ganglion cells, nerve fibers or normal glia cells being discernible. In the white matter the nervous parenchyma was replaced (Fig. 2) by a loose meshwork of connective tissue enclosing cells that were almost exclusively gitter cells or fat-granule bodies. Many of these were very large and contained several nuclei, and the cell bodies were packed with lipoids that stained deeply with scarlet red (Fig. 3). With toluidin blue the granules had a greenish-black appearance that at first glance suggested melanin. In addition to the gitter cells, there were, especially around the vessels, many cells with scanty cytoplasm and darkly staining nuclei that resembled lymphocytes. The connective tissue meshwork contained fibroblasts and numerous capillaries.

In the region previously occupied by gray matter, in addition to the elements described, there were fragments of a granular structureless material (Fig. 4). Except in the center of the lesion where the softening lay immediately beneath the stratum zonale, a similar granular material formed a continuous band, more or less convoluted, which was separated from the stratum zonale by a layer of loose fibrous mesh containing gitter cells and lymphocytes similar to that already described. In this layer a few cells were observed with larger bodies than the lymphocytes; the cytoplasm stained pale blue with the Alzheimer-Mann stain and some of the larger cells contained spherical granules of a still darker blue with this dye. The nucleus was deeply stained, usually round, sometimes oval or definitely indentate. There was no appearance of lattice structure and the nuclei were situated near the center of the cell.

The band of necrotic material was invaded, especially at the edges, with strands of connective tissue fibrils with numerous fine blood vessels with patent lumens and hyperplastic walls. In the sheaths of these vessels, and also scattered freely, were occasional gitter cells.

The transition zone formed a broad area (Fig. 1), which bordered the zone of softening everywhere except at the surface in the center, and extended deeply into the white matter. The most striking features of this zone were the glial and vascular reactions. Scattered throughout were large numbers of enormous cytoplasmic glia cells (Fig. 5); they usually possessed eccentric nuclei and many ramifying processes which sometimes reached the vessel walls. Many showed marked swelling and granulation of the nuclei; in some the nuclei seemed to have ruptured and similar refractile granules were scattered through the cell stroma. In addition to the cytoplasmic glia cells, there were many well-formed gitter cells, especially numerous in the vessel sheaths, but also scattered through the zone. Blood vessels were very numerous with many new formed capillaries; the adventitial sheaths were distended and proliferating and packed with gitter cells. Often these cells were surrounded individually by connective tissue fibrils. In many vessels, the sheaths contained also large numbers of lymphocytes (Fig. 5). Prolonged search revealed an occasional plasma

cell in the vessel sheaths of this zone, but they were so rare as to be entirely negligible.

The demarcation zone consisted of a dense feltwork of glial fibers with glia nuclei. This layer shaded off gradually into the outer edge of the transition zone, but formed a fairly sharp boundary from tissue that presented practically normal ganglion cells, nerve fibers and glia tissue.

The microscopic foci varied in size and occurred both in the gray and the white matter. The larger foci resembled that already described and contained a central focus of softening surrounded by a transition zone and demarcation zone. The smallest foci (Fig. 6) showed complete loss of all nervous elements; in the center were some small blood vessels from which radiated a number of capillaries; the lumens were patent and the adventitial coats thickened and infiltrated with a few gitter cells. The ground work of the focus consisted of glial fibers which shaded off gradually into the surrounding normal structure. Scattered through it were glia nuclei and occasional gitter cells; the latter were also present, here and there, in the vessel sheath of the neighboring normal tissue. In the region of these foci occasional amyloid bodies were observed.

The pia-arachnoid in the region of the lesion was much distended (Fig. 7), its meshes being packed with various kinds of cells including gitter cells, lymphocytes and polyblasts.

SUMMARY.

In this case the changes that have ensued on the occurrence of vascular occlusion are characterized by complete necrosis of the nervous tissues in the center. This occurred much more rapidly in the white than the gray matter where the ganglion cell layers became converted into a structureless mass. The tissue reactions involved both the glia and the mesodermal tissue. In the former, the changes were of two kinds: (1) the development of cytoplasmic glia and gitter cells. These latter infiltrated the whole central region and entered the adventitial sheaths of the vessels where they were surrounded by connective tissue fibrils; (2) at the periphery of the lesion especially, the development of glia fibers. In the smallest lesions these constituted the principal reaction and the final result was a glial scar. The mesodermic reaction included active fibrous proliferation and new vessel formation, with proliferation of lymphocytes. These connective tissue elements had invaded the necrosed area and the central region of softening.

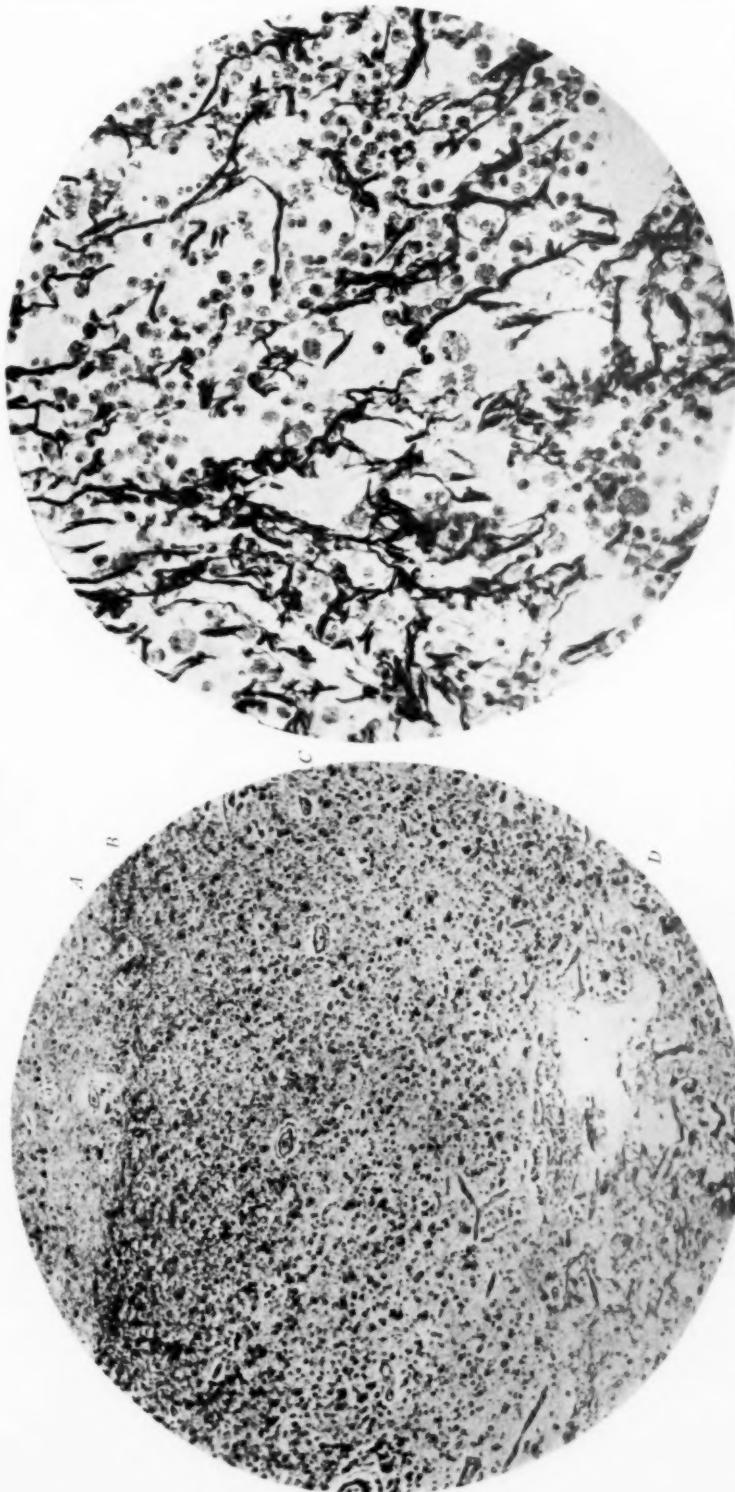


FIG. 1.—Section through small focus showing the three zones:
A, normal tissue; B, demarcation zone; C, transition zone; D, zone
of softening. Bielschowsky. $\times 60$.

FIG. 2.—The zone of softening in the white matter which consists
almost entirely of a loose meshed fibrous tissue and glitter cells.
Alzheimer-Mann. $\times 155$.

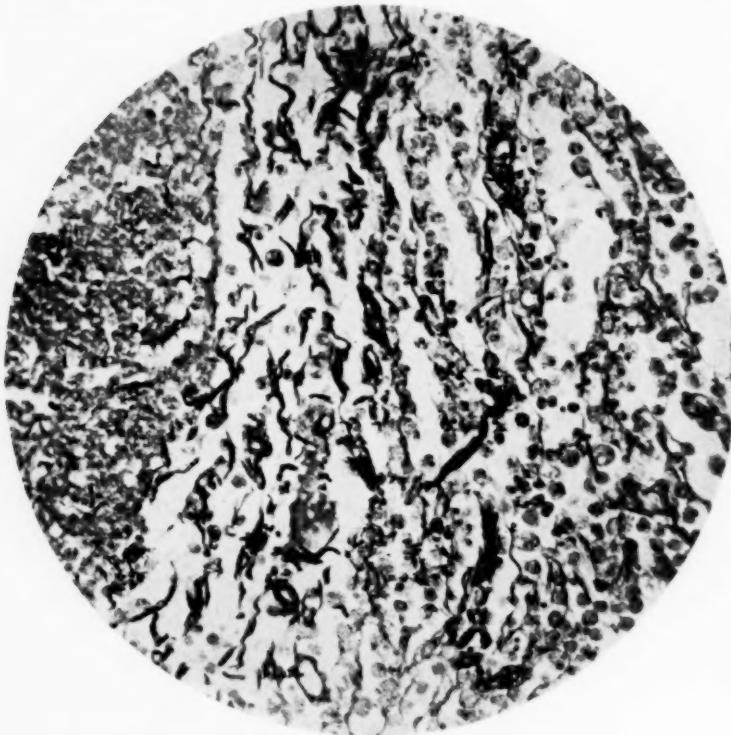


FIG. 3.—The edge of the transition zone nearest to the area of softening. The vessel sheath and surrounding tissue are packed with lipoid-containing glittet cells. Scarlet red. $\times 150$.

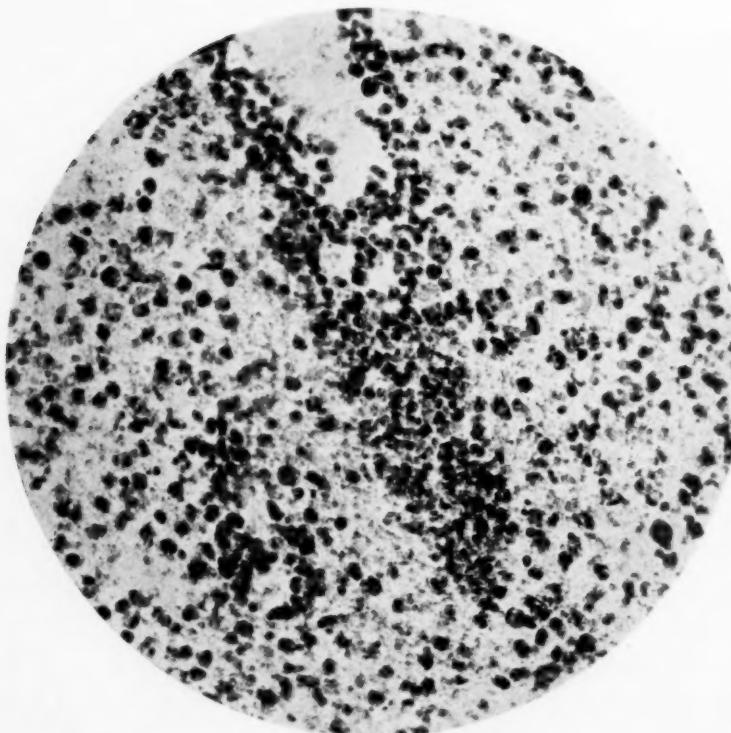


FIG. 4.—Softening of the gray matter showing fragments and the solid band of granular necrotic material of the ganglion cell layer which is infiltrated with fibrous tissue and glittet cells. Alzheimer-Mann. $\times 150$.

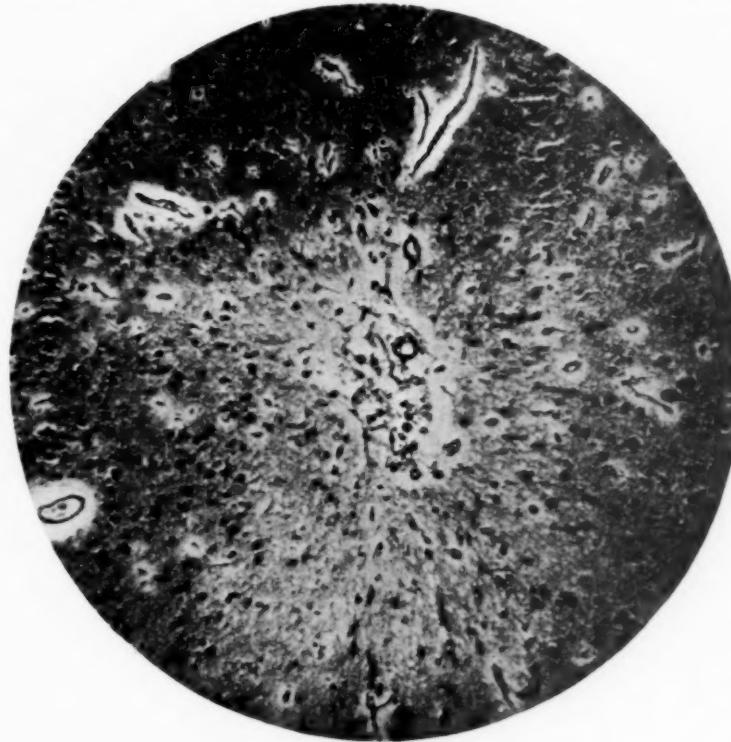


FIG. 5.—The transition zone with numerous cytoplasmic glia cells and glitter cells. The vessel sheath is distended with glitter cells and lymphocytes. Van Gieson. $\times 315$.

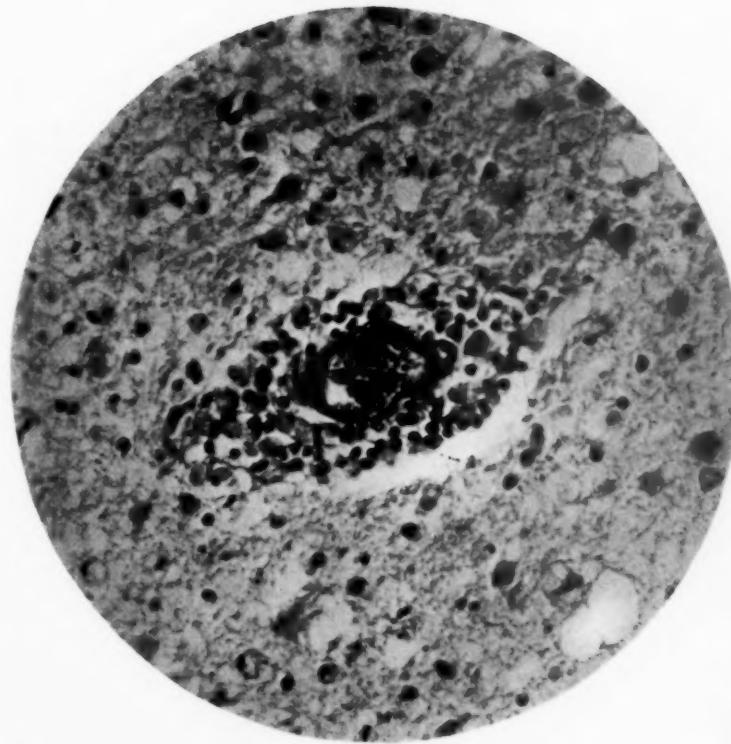


FIG. 6.—Microscopic focus that has been converted into a glial scar. In the sheath of the central blood vessels are a few glitter cells, the granules of which appear as black dots. Bielschowsky. $\times 140$.

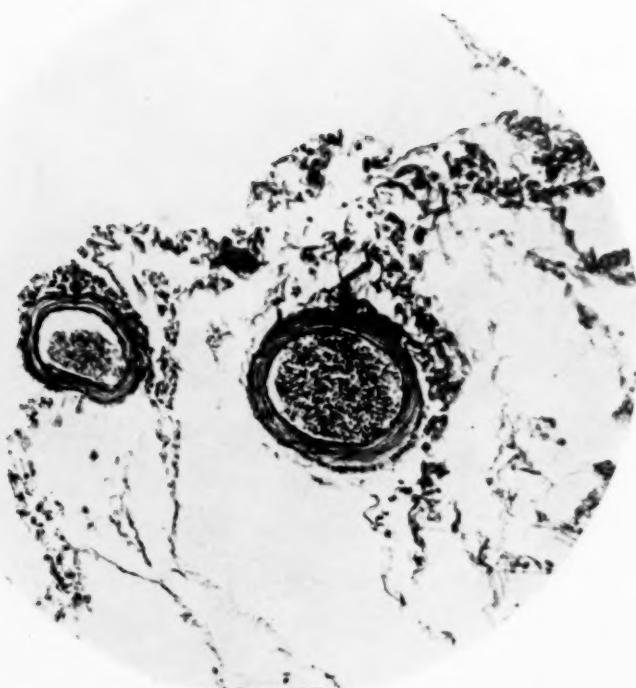


FIG. 7.—Distended pia-arachnoid, the meshes of which contain numerous cells and some thickened vessels. Van Gieson. $\times 145$.

ACIDOPHILE DEGENERATION IN DEMENTIA PRÆCOX.*

By OTIS F. KELLY, M. D.,

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Many authors have described microscopic lesions in the brains of patients who have suffered from dementia præcox, which are indicative of some chronic destructive disease of the cerebral cortex. Dr. Southard¹ has described the gross lesions, chiefly focal atrophies of the cerebrum, which he interpreted as the gross manifestation of the microscopic cell destruction and gliosis. This paper is presented with the purpose of calling the attention of this association to a single microscopic chemical abnormality in dementia præcox which has been mentioned, as far as I know, only once in the published works on the pathology of this disease. This change is illustrated in Plate XXXIV. It is found in sections of the cortex stained by the Alzheimer-Mann method, which consists of a methyl blue and yellow eosin stain, which, in the normal section, stains the nuclei blue, the cytoplasm of the nerve cells blue, the glia fibres blue, the axis cylinder blue, the myelin sheaths pink, and the red blood cells a brilliant red. One cell in the illustration shows the definite nuclear membrane, the definite nucleolus, and more or less definite intranuclear markings, all stained dark blue. This cell is from the cortex in a case of toxæmia of pregnancy and is near enough to the normal for purposes of contrast with the condition of which I am to speak. In the other two sections of this illustration you will see that the nucleus has lost its definite outline, definitely stained nuclear membrane and nucleolus, and presents a homogeneous mass, stained, not blue, but a red—or rather, varying between a light pink and a dark almost purplish, red. Dr. Adeline E. Gurd described this change very briefly in her paper

* Read at the seventy-ninth annual meeting of The American Psychiatric Association, Detroit, Mich., June 19, 20, 21, 22, 1923.

read before this association in Cleveland in 1920.¹ She spoke of it as follows:

In Mann's stain, the dark irregular nuclei of the smaller pyramidal cells, show a very curious and unusual chemical change which I believe has not yet been observed, or at least published, in regard to the cerebral cortex. In the Mann-Alzheimer stain the normal nerve cell body stains a medium dark blue, the nucleus a darker blue and the nucleolus a distinct red. In the degenerated cells above referred to the cell body is a dark blue and the whole nucleus is a red varying from purple-red to pale scarlet. As in the Nissl's stain the limits of the nuclear membrane are frequently untraceable, the purplish or bright red fading gradually into the body of the cell.

In Mann-stained sections at Danvers, I have usually found the nucleolus stained blue rather than red as described by Dr. Gurd. The cases were, of course, all psychotic. These few lines are, as far as I know, the only mention in the literature of this condition save a single reference to Dr. Gurd's paper.² It is called acidophile degeneration, because in it the nucleus seems to have a chemical affinity for the eosin, or acid stain, instead of for the methyl blue, or basic stain, as in the normal cell. Plate XXXV is simply a photograph showing the cell lamination in the frontal cortex, to point out visually the part of the cortex in which this condition is found; namely, in the small and medium pyramidal cells in the cortical layer just beneath the ganglion-cell-free molecular layer. Frequently it must be searched for with very considerable care.

Having been shown this striking lesion by Dr. Gurd at the laboratory of the Psychopathic Hospital at Ann Arbor, I began looking carefully for it in the cases of dementia præcox and some other cases in the Danvers laboratory; and as a result I have studied 10 cases, clinically diagnosed as dementia præcox, and 32 cases in which diagnoses other than dementia præcox had been made. In these cases, in order to have a definite way of measuring the intensity of whatever disease process this condition represents, I have in each slide where it appeared counted the number of cells in which I was able to see it per 10 oil immersion fields.

I have arranged in tabular form (Table I) the 10 cases in which the diagnosis dementia præcox had been made. In seven of them acidophile degeneration was found and a review of these seven cases shows that in all of them the staff were agreed as to the diagnosis and the nature and course of the disease were those ordinarily considered as characteristic of dementia præcox. Inci-

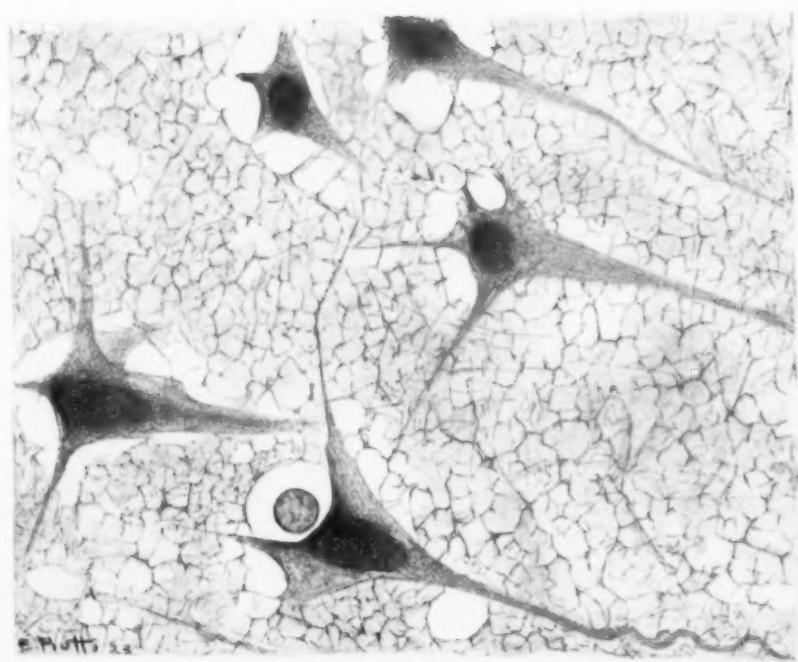
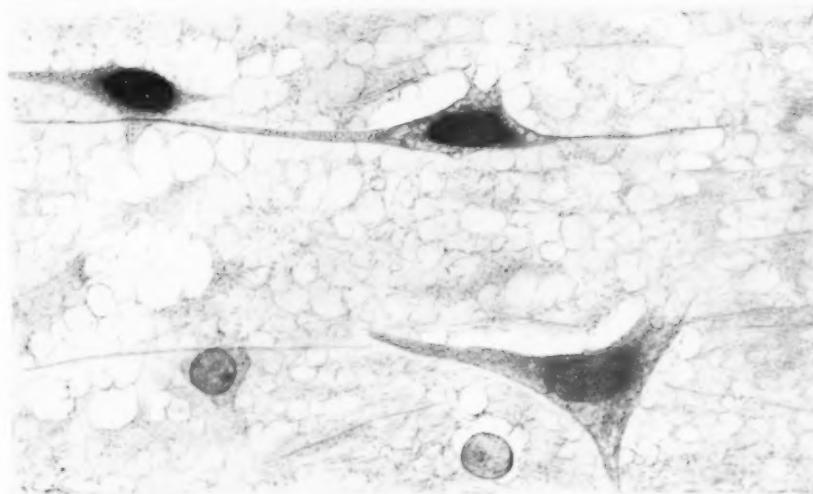


FIG. I.—Acidophile Degeneration in a case of Dementia Praecox Hebephrenic.
(Autopsy 2295.)

FIG. II.—Cell from the layer of small and medium pyramidal cells of the frontal cortex in a case of toxæmia of pregnancy.

FIG. III.—Acidophile Degeneration in a case of Dementia Praecox Catatonic.
(Autopsy 2234.)

Mole

Small
met
pyra

S

sub

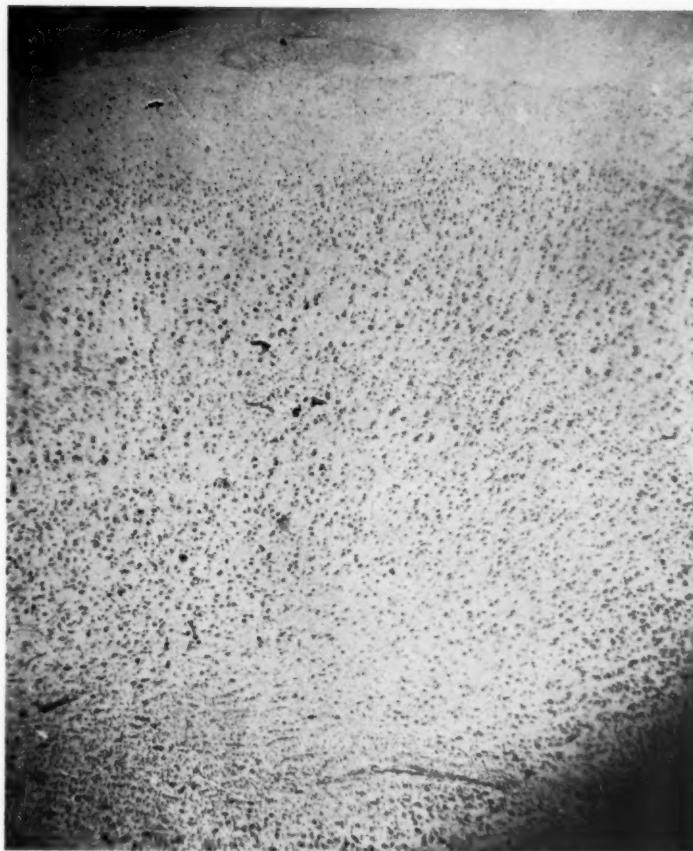
AMERICAN JOURNAL OF PSYCHIATRY, VOL. III, No. 4. PLATE XXXV.

Molecular
layer.

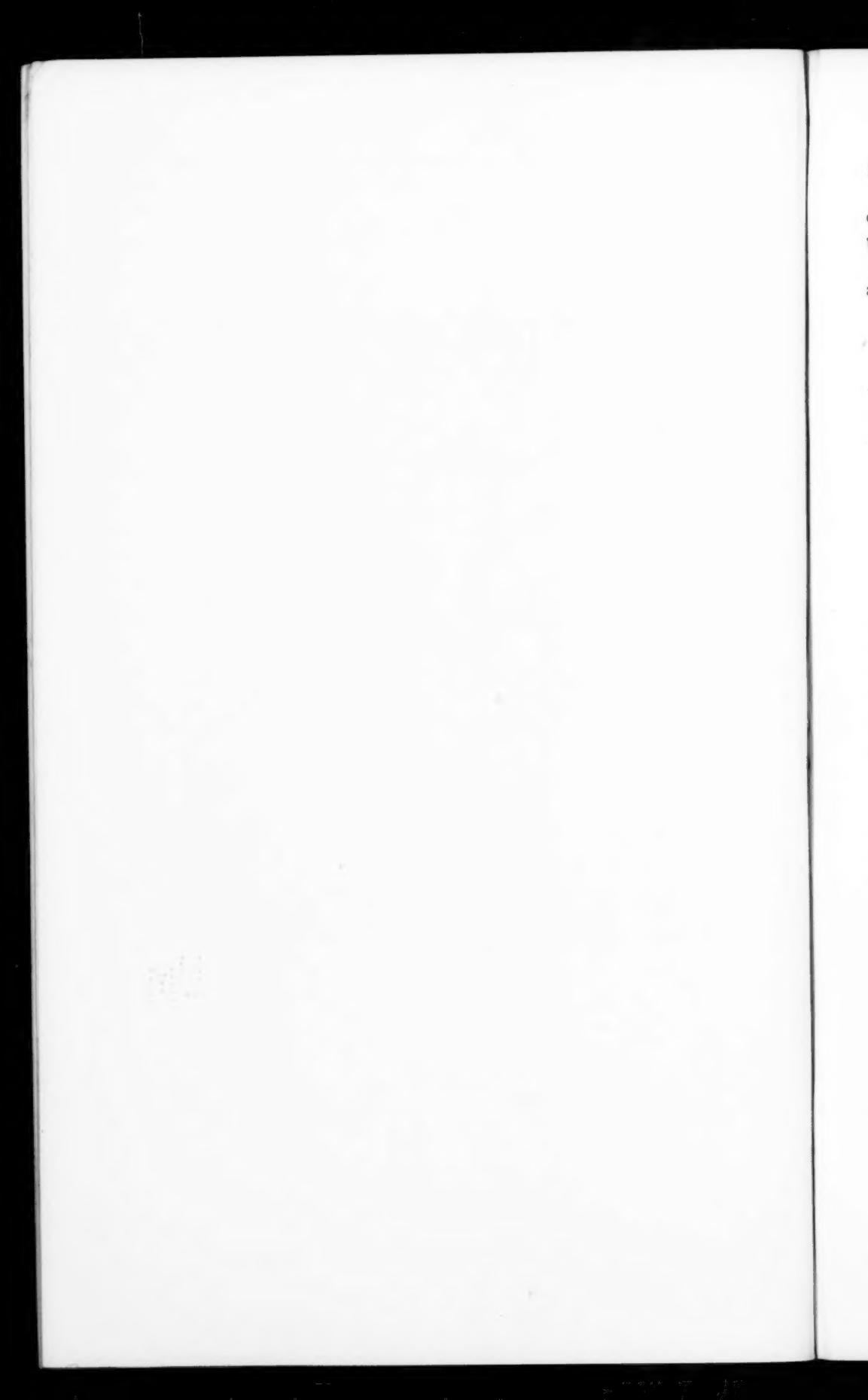
Small and
medium
pyramidal
cells

Stellate
layer.

White
substance.



Cortical Lamination. It is in the layer of small and medium pyramidal cells that acidophile degeneration is found. (Autopsy 2295. Frontal cortex. Thionin stain. Low magnification.)



dentially in these seven cases, hebephrenic, catatonic and paranoid types are represented.

The other three of these 10 cases (VI, IX, and X), in which no acidophile degeneration was found, are worthy of review.

TABLE I.
CLINICALLY DIAGNOSED DEMENTIA PRÆCOX.

Case.	Aut. No.	Sex.	Age.	Type.	Duration of psychosis and other features.	Acidophile degeneration.
I	2141	F.	27	Cat.	1 year. Progressive course. Obsolete tuberculosis.	Present. Not counted.
II	2154	M.	27	Heb.	5 years. Progressive course. Pulmonary tuberculosis.	Present. Not counted.
III	2230	F.	50	Cat.	2 years. Except for attack at age of 21. Demented. Pulmonary tuberculosis.	Frontal, 15. Temporal, 15. Precentral, rare. Postcentral, rare.
IV	2234	F.	35	Cat.	6 months. Sudden death. Apical pulmonary scar. Beginning meningitis.	Frontal, 60. Precentral, 16. Postcentral, 39.
V	2243	F.	32	Par.	6 years. Dementia following a series of attacks of catatonia. Pulmonary tuberculosis.	Frontal, rare. Precentral, rare. Temporal, rare.
VI	2288	M.	50	Cat.?	3 years. Organic brain disease and involution considered as possible diagnosis.	None.
VII	2295	F.	34	Heb.	6 years. Demented. Pulmonary tuberculosis.	Frontal, 24. Precentral, 2. Postcentral, 15. Temporal, 10.
VIII	2321	M.	35	?	16 years. Demented. Pulmonary tuberculosis.	Frontal, 10. Temporal, rare. Precentral, rare.
IX	2332	F.	67	Par.	42 years. Condition stationary for 35 years. Died of pernicious anæmia. Diagnosis on admission acute mania or paranoia.	None.
X	2348	F.	39	Heb.	3 years. Once diagnosed organic brain disease. Proved to be so at autopsy.	None.

The figures in the last column refer to the number of cells with acidophile degeneration per 10 oil immersion fields.

The first (Aut. 2288) is that of a physician 50 years of age who was admitted with mutism, resistiveness, depression and refusal of food. His mental disease had begun only three years before (at the age of 47) and had been of gradual progress. He had been considered at another hospital (Boston Psychopathic) to be suffering from "organic brain disease," and at Danvers the staff disagreed as to the diagnosis, involution psychosis being considered as a probable diagnosis.

The second (IX, Aut. 2332) is that of a woman, age 76 at time of death, an old and trusted patient at Danvers for 35 years following her recovery, if it may be called so, from the acute psychotic condition for which she had been admitted, although she retained mildly paranoid ideas. On admission, "acute mania" or "paranoia" had been considered as possible diagnoses. She died of pernicious anaemia.

The third case (X, Aut. 2348) is that of a woman 39 years of age at death, who had manifested a progressive and several general dementia. She had been considered at another hospital (Boston Psychopathic) to be suffering from "organic brain disease, possibly brain tumor or neurosyphilis." Autopsy did demonstrate the existence of a very unusual organic brain disease in the form of extremely severe gross atrophy and microscopic gliosis in the frontal and temporal lobes, of unknown origin.

Of the three cases not showing acidophile degeneration, then, two are of doubtful diagnosis and the other is not only of doubtful diagnosis, but even if the diagnosis had been originally correct, the disease apparently had remained arrested for 35 years or more.

Of the 32 cases in which diagnoses other than dementia præcox had been made, and which were studied by the Mann method, two showed acidophile degeneration. In one of these the diagnosis "Imbecility" had been made 21 years before death. Acidophile degeneration was found. On reviewing this man's record, we felt at Danvers that it was quite possibly a mistaken diagnosis and that the patient might in reality have been suffering from dementia præcox. The other case was one of neurosyphilis, and the signs of neurosyphilis were so prominent that the possibility of any other disease existing simultaneously had not been considered.

Table III shows a list of the diagnoses in the 30 cases at Danvers in which acidophile degeneration was searched for but not found. I would call attention to the fact that it includes cases of both

TABLE II.

CASES OTHER THAN DEMENTIA PRÆCOX, SHOWING ACIDOPHILE DEGENERATION.

Case.	Aut. No.	Sex.	Age.	Type.	Duration of psychosis and other features.	Acidophile degeneration.
I	2298	M.	46	Imbecile.	21 years. Acute psychosis three years before admission. Possibly dementia præcox. Died of pulmonary tuberculosis.	Frontal, 6. Precentral, 8. Calcarine, none. Cerebellum, 2 or 3 in whole section (Purkinje cells).
II	2308	M.	62	G. P. or Neuro-syphilis.	Entered with signs of advanced neurosyphilis and died in a convulsion. No tuberculosis.	Frontal, 13. Others, none.

The figures in the last column refer to the number of cells with acidophile degeneration per 10 oil immersion fields.

TABLE III.

CASES OTHER THAN DEMENTIA PRÆCOX, SHOWING NO SIGN OF ACIDOPHILE DEGENERATION.

	Cases.
Senile dementia	2
Cerebral arteriosclerosis	4
General paresis	2
Neuro-syphilis	1
Brain tumor	2
Other brain disease	1
Delirium tremens (acute)	1
Alcoholic deterioration	3
Toxæmia of pregnancy	1
Lethargic encephalitis	1
Manic-depressive manic	2
Manic-depressive depressed	3
Involution melancholia	3
Mental deficiency	1
Cerebral hemorrhage of unknown origin in a boy.....	1
Unclassed (involution?)	1
Epilepsy (deterioration)	1

neurosypphilis and mental deficiency which fact should be considered in the light of the two cases referred to in the previous paragraph, in which similar diagnoses had been made but acidophile degeneration found.

ACIDOPHILE DEGENERATION AND TUBERCULOSIS.

One is struck on examining, in Table I, the 10 cases diagnosed dementia præcox, with the fact that the seven cases which showed acidophile degeneration, also showed at autopsy, signs of pulmonary tuberculosis, while the other three, which did not show acidophile degeneration did not show signs of pulmonary tuberculosis, nor tuberculosis of other organs. The coincidence of dementia præcox and pulmonary tuberculosis is a common enough occurrence in every psychiatrist's experience. It seemed worth while to find out how many of the cases studied for acidophile degeneration without disclosing it, showed signs of tuberculosis. Six were found, three with active pulmonary tuberculosis, which was the primary cause of death in two and the contributory cause in one (general paresis being the primary cause). These are shown in Table IV.

TABLE IV.

CASES OTHER THAN DEMENTIA PRÆCOX NOT SHOWING ACIDOPHILE DEGENERATION BUT SHOWING TUBERCULAR LESIONS.

2310 Senile dementia.	Pulmonary tuberculosis.	Cause of death.
2311 General paresis.	Pulmonary tuberculosis.	Contributory cause.
2329 Mental deficiency.	Pulmonary tuberculosis.	Cause of death.
2330 Manic-depressive.	Apical pulmonary scars.	
2297 Senile dementia.	Apical pulmonary scars.	
2299 Brain tumor.	Apical pulmonary scars.	

ACIDOPHILE DEGENERATION WITHOUT PULMONARY TUBERCULOSIS.

2308 General paralysis.	No signs of tuberculosis.
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It will be noticed in the seven dementia præcox cases with acidophile degeneration and pulmonary tuberculosis that the tuberculosis was active and the cause of death in five, and the other two had only apical scars in the lung. Notice that one of the latter is the most marked case of acidophile degeneration.

Of the two cases not diagnosed dementia præcox which showed acidophile degeneration, pulmonary tuberculosis was the cause of death in one and the other showed no sign of tuberculosis.

A study of Table V, remembering the facts that the most marked case of acidophile degeneration showed only an old apical scar in the lung, that there is one case with no signs of tuberculosis but

TABLE V.

RELATION BETWEEN ACIDOPHILE DEGENERATION, PULMONARY TUBERCULOSIS AND DEMENTIA PRÆCOX.

Tuberculosis cause of death.	<table border="0"> <tr> <td>6 cases with acidophile degeneration.</td><td> <table border="0"> <tr> <td>5 cases dementia præcox.</td></tr> <tr> <td>1 case probable dementia præcox.</td></tr> </table> </td></tr> <tr> <td>3 cases without acidophile degeneration.</td><td>Not dementia præcox.</td></tr> </table>	6 cases with acidophile degeneration.	<table border="0"> <tr> <td>5 cases dementia præcox.</td></tr> <tr> <td>1 case probable dementia præcox.</td></tr> </table>	5 cases dementia præcox.	1 case probable dementia præcox.	3 cases without acidophile degeneration.	Not dementia præcox.
6 cases with acidophile degeneration.	<table border="0"> <tr> <td>5 cases dementia præcox.</td></tr> <tr> <td>1 case probable dementia præcox.</td></tr> </table>	5 cases dementia præcox.	1 case probable dementia præcox.				
5 cases dementia præcox.							
1 case probable dementia præcox.							
3 cases without acidophile degeneration.	Not dementia præcox.						
Scars at apex of lung (healed tuberculosis)	<table border="0"> <tr> <td>2 cases with acidophile degeneration.</td><td>Dementia præcox.</td></tr> <tr> <td>3 cases without acidophile degeneration.</td><td>Not dementia præcox.</td></tr> </table>	2 cases with acidophile degeneration.	Dementia præcox.	3 cases without acidophile degeneration.	Not dementia præcox.		
2 cases with acidophile degeneration.	Dementia præcox.						
3 cases without acidophile degeneration.	Not dementia præcox.						
No signs of tuberculosis.	1 case with acidophile degeneration.						

with acidophile degeneration, counteracts the suggestion of Table I that acidophile degeneration may be related to tuberculosis.

INFLUENCE OF FIXATION ON THE FINDING OF ACIDOPHILE DEGENERATION.

If one reads the abstracts of the records of these cases appended to and published with this paper, he will notice that acidophile degeneration was found in tissues fixed at autopsy immediately in Weigert's glia mordant and in tissues which had been preserved in formalin for periods varying in lengths up to three years. In at least one case sections were prepared from the same cortical areas both at autopsy and after several months preservation of the brain in formalin, and acidophile degeneration was found in both in the same proportion. It seems, then, that the presence and intensity of acidophile degeneration does not depend on fixation except that in very old tissues (three years in Cases I and II, Table I), it is not well defined in the stained section.

DISTRIBUTION.

As regards distribution, I have found acidophile degeneration in the frontal, precentral, postcentral and temporal areas of the cortex. In the calcareous, Ammon's horn, basal ganglia and brain stem I have looked for it and not found it. I found it in two of the Purkinje cells in the cerebellum in the case diagnosed "imbecile" (Autopsy 2298). In general this distribution corresponds to that described by others for other microscopic lesions and gross atrophies. In connection with its presence in the temporal ("auditory-psychic") area, and absence in the calcareous ("visual") and Ammon's horn ("olfactory") areas, one thinks of the vividness to the patient of the auditory hallucinations in dementia præcox and the vague, almost illusionary character of what sometimes appear at first to be hallucinations in other spheres in the same disease.

The relative distribution in the different cortical regions in the different types of dementia præcox in these cases does not seem to me to furnish data for any conclusions as to the coordination of symptoms with distribution of lesions. Neither is the number of cases sufficient for speculation in this regard.

Its limitation to the layers of small and medium pyramidal cells recalls Kraepelin's speculations concerning the association of the function of these cells with the psychological process of abstraction, and his statement that "in dementia præcox apparently it is the loss of those permanent foundations of the psychic life, as they are created by abstraction, which influences the clinical picture often in the highest degree in incoherence of thought, in contradictory change of emotions, in impulsiveness of action."⁴

INTENSITY.

The most severe degree of acidophile degeneration was found in Case IV (Autopsy 2234) of a woman 35 years of age who was suffering from acute catatonia, and while waiting for her breakfast one morning fell from her chair in a peculiar kind of seizure and died in 10 minutes. The autopsy revealed very early beginning broncho-pneumonia and beginning acute meningitis at the base of the brain. The case suggests that acidophile degeneration may possibly be the anatomic cerebral manifestation of whatever the organic

basis of dementia præcox is, during especially the acute phase of the disease. Again, however, the other cases are insufficient to warrant conclusions in this respect.

SUMMARY AND CONCLUSION.

The purpose of this paper is to call attention to acidophile degeneration, hitherto described only once and otherwise practically ignored. The possibilities of its presence being the result of tuberculosis or of the method of tissue fixation are considered and discarded. It was found in seven of a group of 10 cases clinically diagnosed dementia præcox; of the three cases in which it was not found, two were doubtful diagnoses and one was found at autopsy to be another condition. Of 32 cases with the diagnoses other than dementia præcox, two showed acidophile degeneration; on reviewing their records we feel that one *probably* was a case of dementia præcox, and it is within the bounds of possibility that in the other dementia præcox may have been present in addition to neurosyphilis. Its distribution is considered, especially in relation to symptoms and to Kraepelin's theory of the function of the small and medium pyramidal cells.

The cause and significance of acidophile degeneration are at present unknown. It is possible that it may on further study furnish an anatomic criterion for the postmortem diagnosis of dementia præcox, and a guide for further investigation as to etiology. At any rate it adds to the already large amount of evidence that the mental symptoms of dementia præcox are the manifestations of the disordered function of an organically disordered brain.

REFERENCES.

1. Southard, E. E.: A Study of the Dementia Præcox Group in the Light of Certain Cases showing Anomalies or Scleroses in Particular Brain Regions. *Am. Jour. Insanity*, 1910.
- Southard, E. E.: On the Topographical Distribution of Cortex Lesions and Anomalies in Dementia Præcox, with Some Account of Their Functional Significance. *Am. Jour. Insanity*, Vol. LXXI, No. 3.
2. Gurd, Adeline E., M. D.: The Structural Brain Lesions of Dementia Præcox. *Am. Jour. Insanity*, Vol. LXXVII, No. 2.
3. Davis, Edgerton Y.: Comparative Notes on the Histopathologic Findings in Dementia Præcox. *Dementia Præcox Studies*. January, 1922.

4. *Dementia Præcox and Paraphrenia.* Translated by R. M. Barclay; Edinburgh, 1919. Page 220. Kraepelin's ideas in this regard are also discussed in "The Stratigraphical Analysis of Fine Cortex Changes in Certain Normal Looking Brains in Dementia Præcox," by E. E. Southard and M. M. Canavan; *Jour. Nerv. and Ment. Dis.*, Vol. 45, No. 2, Feb., 1917.

ABSTRACTS OF TEN CASES CLINICALLY DIAGNOSED DEMENTIA PRÆCOX AND TWO OTHER CASES WHICH SHOWED ACIDOPHILE DEGENERATION.

I. Clinical No. 21454 (Autopsy No. 2141). Diagnosis: Dementia præcox, catatonic. A young woman 25 years old, single, and well educated. At the age of 22 she had accepted a position as a teacher in Georgia, and on going to begin her duties was shocked to find that all the other teachers in the school were negroes. At one time she became engaged to a Japanese student, but the engagement was later broken. A year before admission she is said to have suffered from ptomaine poisoning. For 10 months before admission she was at the McLean Hospital with the diagnosis dementia præcox, catatonic. The disease began with the thought that she was being followed by spies; that her food was being poisoned; and that she could hear people on the roof. The family said she became hysterical. She climbed from the window and went to the Y. W. C. A. in her nightgown and bare feet. At the McLean hospital she refused to eat, was mute, disturbed, apprehensive, and her condition alternated between catatonic stupor and catatonic excitement. On admission to Danvers she had acne, moist oily skin, long slender hands and feet, irregular cardiac rhythm, fetid breath, dilated pupils, cyanosis of hands and feet, and was tube-fed and incontinent, probably wilfully so. She became denudative, progressively failed, and died November 2, 1919. Autopsy 12 hours post-mortem showed emaciation, rudimentary lobes of the right lung, very early bronchopneumonia, old apical scar of right lung, infantile uterus, well-developed ovaries, and a calcified mass in the mesentery, possibly obsolete tuberculosis. The brain remained three years in formalin, and sections stained by Mann's method revealed on very careful search acidophile degeneration, but whether from poor fixation or what, it did not seem in this case worth while to count them.

II. Clinical No. 21633 (Autopsy No. 2154). Diagnosis: Dementia præcox, hebephrenic. A single young man, age 27, who had been in another state hospital on two occasions. His mother was insane, and he had been slow in school, had held many varied positions as a laborer and hotel boy, had been excessively alcoholic, had had gonorrhea in 1911. He had ideas of reference, auditory hallucinations, conduct disorder, thought he was the victim of a conspiracy, was frequently impulsive, but withal was emotionally indifferent. Physically he was emaciated, had dry and harsh skin, coated tongue, dilated pupils, sluggish reflexes, and a blood pressure of 100—70. He died December 25, 1919, six months after admission, of pul-

monary tuberculosis. The autopsy showed also some tuberculous ulcers of the small intestine. In this case also acidophile degeneration was present, but the brain having remained three years in formalin, it did not stain sufficiently well to warrant counting.

III. Clinical No. 21430 (Autopsy No. 2230). A single woman, age 48, diagnosis dementia praecox, catatonic. Her father was insane. One sister had dementia praecox, paranoid, and one brother dementia praecox, catatonic, both in Danvers State Hospital. One other brother disappeared from home 10 or 15 years previous to patient's admission. The patient graduated from high school at 18, had an attack of pneumonia and a disappointment in love at the age of 21 which was followed by a breakdown, during which she was talkative, noisy, and screaming. This lasted six months, and she had never returned to her normal condition. She then had several nervous attacks, and for six months previous to admission had been irregularly dull and excited, with irregular menses and carelessness in her appearance. Physically she showed emaciation, sallow dry skin, some hypertrichosis, adherent ear lobules, a systolic murmur, pulse 90, blood pressure 128—100, pupils dilated. Mentally she was confused, complained of a feeling of pressure on the top of her head, was dull, morose and obstinate. She was oriented, apprehensive, incooperative, and suffered from auditory hallucinations. Emotionally apathetic. She had to be tube-fed. She then progressively failed physically for two years, and died of pulmonary tuberculosis. Autopsy nine and one-quarter hours after death, by Dr. Uyematsu, showed emaciation, dilated irregular pupils, hypertrichosis, generalized lymphadenitis, eczema of the feet, pulmonary tuberculosis, adherent dura, pial edema. Brain weight 1350 grams. This brain remained in formalin for about a year, and then sections stained by the Mann method showed acidophile degeneration in the prefrontal region in 15 cells per 10 fields, in the temporal tip 15 cells in 10 fields, and in the anterior and posterior central convolutions it was found in a rare cell.

IV. Clinical No. 22641 (Autopsy No. 2234). A married woman, age 35, diagnosis dementia praecox, catatonic. This patient was an orphan, was a bright child, was married at 27. Two years before admission she was operated on for uterine retroversion. Two years later a son was born, following a severe labor seven weeks before the calculated termination of pregnancy. Her mammary function was insufficient, and she developed the idea that her milk was going to her legs and scattered through her system and going to her head. Sleep became poor, and she refused to eat on the ground that, if she did, the milk would go to her head and make her crazy. She then thought that she could never take care of her baby, and that her husband had made a mistake in marrying her; later that her husband was going with another woman, upon which she gave him her jewelry and Liberty bonds to care for someone else, as she was not worthy of his care. She said that she could not walk or eat; that someone was going to take her eyes out; that all her bones were broken; that everyone was cheat-

ing her. She was at the Psychopathic Hospital for seven days before coming to Danvers. Physical examination showed long tapering fingers, frail build, rough expiration and rales at the right apex, pulse 108, blood pressure 128—80, unequal knee-jerks, and an operative abdominal scar. Mentally she showed apathy, mutism, inaccessibility, and rigidity. She complained of confusion, and was partially oriented in that she did not believe that she was in Danvers. Her memory was "foggy," as she described it, and she suffered from accusing auditory hallucinations. She became self-accusatory and apprehensive. She said that she had a terrible feeling in her head. Her condition remained practically unchanged until three months later, when in the early morning, while sitting on a chair waiting for her breakfast, she fell to the floor, cyanosed and frothing at the mouth. Her pulse could not be felt, her respiration was labored, she had widely dilated pupils, and died in ten minutes. Autopsy showed a small old apical scar in the lung, very early beginning broncho-pneumonia, and very early acute meningitis at the base of the brain. This brain remained for about a year in formalin, and then showed acidophile degeneration in the prefrontal cortex in 60 cells in 10 fields, in the precentral cortex in 16 cells in 10 fields, in the posterior central cortex in 39 cells in 10 fields, and in the calcarine and temporal cortex acidophile degeneration was not found.

V. Clinical No. 20243 (Autopsy No. 2243). A married woman, age 23, diagnosis dementia præcox, paranoid. Her mother was a patient at Danvers. In 1915, two years before admission, she was noticed making queer statements and imagining that people were stealing from her. She quickly improved, but never afterwards regained her former interest in her home and household. A year later a second child was born. During the pregnancy she had had increasing disturbance and neglect of her household, which continued after the birth of the child. A few weeks before admission she became flighty in her talk, insisted that her name was something besides her real name, that her sister was not her sister, that her parents were both living (although her father was dead), and that she was born in New York (although she was really born in Everett, Mass.), that she had much property, and that she owned the General Electric Co. She showed no interest in her baby. For a few days before admission she would run out into the street and threaten people, and would sit at the window and cry out to passersby. Examination showed dry skin and mucous membranes, flat chest, mitral insufficiency, blood pressure 140—70, deep reflexes slightly exaggerated, blood Wassermann doubtful. Mentally she seemed interested and bright. She showed some formation of new words; for example, she said, "My ears, eyes and throat are in a 'farnsed' condition." She seemed to react to hallucinations, although she denied them. She said she had been in a "torture" condition and in a trance. She then failed progressively for two years, during which time she escaped once, made several attempts at suicide, and had intermittent attacks of catatonia. Two years before death she had an attack of catatonic excitement which lasted a short while, and then she remained

mentally stationary. She failed physically and died of pulmonary tuberculosis. Autopsy by Dr. Canavan showed scanty hair, acute peritonitis, brilliant red ovaries, pericardial thickening and effusion, pulmonary tuberculosis, adherent renal capsule, congested kidneys, granular ulcers in the small intestine, one of them perforated (tubercular ulcers), dura adherent to skull cap, frontal lobe short, brain weight 1100 grams. This brain remained in formalin for about a year or less, and then acidophile degeneration was found in a rare cell in the frontal, precentral and temporal areas of the cortex, and they were not only rare, but they were poorly defined and difficult to find.

The rarity and indefiniteness of the acidophile degeneration in this case are interesting in view of the doubtful Wassermann reaction and less typical character of the symptoms.

VI. Clinical No. 23612 (Autopsy No. 2288). A man, a Jewish physician, married, age 50 years. Diagnosis: Probably dementia praecox, catatonic; possibly involution psychosis or organic brain disease. Family history was negative. He began to fail three years before admission, when the family moved to Jersey City, the patient going merely to please the family, who thought that he would do better in that city. He became absent-minded, forgetful, neglectful in his business. He then seemed to lose his ability to speak, and only uttered occasional foolish remarks. He began to refuse food, and finally would take only sugar and water. He lost weight and sat about in a demented condition, silent and stooped. He was at the Boston Psychopathic Hospital, where physical examination showed lively deep reflexes, blood pressure 100—65, negative ophthalmoscopic examination, negative Wassermann blood and spinal fluid, other tests on spinal fluid negative, blood count negative and urine negative. At the Psychopathic Hospital the diagnosis of organic brain disease, type undetermined, was made. At Danvers his condition was the same, and he died six days after admission. Autopsy five hours after death showed pulmonary adhesions, arrested pulmonary tuberculosis, early bronchopneumonia, pulmonary congestion and edema, peritoneal adhesions, pial edema, and some cerebral atrophy. The diagnosis at Danvers was catatonic dementia praecox, some of the staff feeling that the case should be left undiagnosed with a preference for organic brain disease. Careful search of sections from this brain revealed no sign of acidophile degeneration.

VII. Clinical No. 19335 (Autopsy No. 2295). Diagnosis: Dementia praecox, Hebephrenic. A married woman, age 34, who had one sister feeble-minded and one daughter peculiar. She had always been a quiet and unassuming woman. Had been married eight years before admission. A few months before admission she had ideas of food poisoning, suspiciousness and seclusiveness, and failed physically. She thought she would have to die to save the family, wrote incoherent letters to her friends, complained of being more or less mixed up and confused. Emotionally she was very changeable, with attacks of confused excitement and others of dullness and restlessness, mutism and resistiveness. Physically she showed some-

what diminished reflexes, pulmonary tuberculosis, blood pressure 100—65, negative urine and Wassermann. Mentally she showed the things spoken of in the history, and in addition active auditory hallucinations. She then remained in the hospital six years. About seven months after her admission she had improved so much that she was taking occupational therapy in the Arts and Crafts Department, and was occasionally leaving the hospital for brief visits at home, and she did not seem to change greatly in mental symptomatology until she finally died from pulmonary tuberculosis, emaciation, fibrous adhesions about the spleen, febrile spleen; brain weight 1240 grams. Acidophile degeneration was found in this brain in the frontal region in 24 cells per 10 fields, in the precentral region there were two cells per 10 fields, in the posterior central region in 10 to 20 cells per 10 fields, in the temporal region in about 10 cells per 10 fields, and in the calcarine region no sign of acidophile degeneration was found. In this case the sections were prepared in the stain both from the fresh brain at autopsy and from the brain after formalin fixation, and in both cases the same results were obtained as regards acidophile degeneration.

VIII. Clinical No. 14517 (Autopsy No. 2321). Diagnosis: Dementia præcox, hebephrenic. A single man, age 18, who had one aunt an imbecile, a maternal grandfather with senile dementia, a paternal uncle with epileptic insanity, a paternal cousin who hanged himself in his youth, a brother formerly a patient at Danvers, and still another brother who is nervous and gets easily excited. He was apparently a normal child, a high school graduate, and assumed considerable responsibility on his father's farm. Later, however, he began to show signs of lack of his former judgment; began to be a little headstrong; once tore up a dollar bill for no reason. Two days before his admission he went to bed in the afternoon, an unusual thing for him. The following day he broke a glass in his milk wagon with a can, pulled the planks off the well, left his cap and his stockings in his brother's house, chased the pigs around the yard, left his clothes in a pasture and came home with nothing on but his shirt. During the night he was noisy, incoherent and profane. Physical examination showed nothing except lively deep reflexes, a slight trace of albumen in the urine. Wassermann was negative. There followed a progressive course with auditory hallucinations, conduct disorder of a silly and impulsive nature, and he died in December, 1922, of pulmonary tuberculosis after several month's sickness. The autopsy showed pulmonary tuberculosis, pericardial effusion, gall stones, caseous mesenteric lymph nodes, slight chronic leptomeningitis, focal cortical atrophies, with a brain weight of 1435 grams. Acidophile degeneration was found in this case in nine cells in 10 fields in the frontal region, in a rare cell in the temporal region, and none in the precentral region.

IX. Clinical No. 1413 (Autopsy No. 2332). Diagnosis: Dementia præcox, paranoid. Possibly acute mania or paranoia. A woman, aged 26 at the time of admission in 1880, who died January, 1923, at the age of 69. She was single, and had been peculiar, according to her own statement, from birth,

and nervous for many years. She began to suffer from hallucinations of sight and hearing, with obscene delusions. She went to New York, was sent to the Bellevue Hospital, and then committed to Danvers. She then had occasional spells of excitement. She escaped twice. During her excited spells she broke glass, threatened homicide, and refused food. She then became quiet and ceased to have excited episodes, but always remained somewhat suspicious. On admission she was at first considered to be suffering either from acute mania or from paranoia, but later was classified in the dementia *præcox* group. Three years after admission—namely, in 1883—she had improved steadily, had had many visits at home, and from that time until her death, 40 years later, remained one of the most trusted patients in the hospital, with full parole, and little or no deterioration, never afterwards showing mentally any more than slight suspiciousness, fondness of attention, and an air of authority when privileges were given to her because of her excellent behavior and excellent mental condition. She developed pernicious anæmia and died of pernicious anæmia in January, 1923. No sign of acidophile degeneration was found in her brain.

X. Clinical No. 22980 (Autopsy No. 2348). Diagnosis: Dementia *præcox*, hebephrenic, or organic brain disease. A woman, 39 years old at the time of admission. Her family history was negative. She is said to have had two nervous breakdowns, one at five and the other at 19 years of age. At the age of 34, three years before admission to Danvers, a second child was born to her, and she began to show gradual and progressive conduct, disorder and neglect in her household. She was committed to the Boston Psychopathic Hospital, and also spent some time in a private mental hospital. At the Psychopathic Hospital the diagnosis of organic brain disease, either brain tumor or neurosyphilis, was made. The Wassermann reactions were negative. Autopsy in this case revealed organic brain disease in the shape of a very severe convolutional atrophy in the frontal and temporal lobes, with a severe selective gliosis of these lobes. No tumor or signs of syphilitic brain disease could be found. No sign of acidophile degeneration could be found.

In carefully reviewing the slides stained by the Mann method in 32 cases other than dementia *præcox*, acidophile degeneration was found in two of them, and a review of these two cases is worth while.

The first of these (Autopsy No. 2298, Clinical No. 10408), is a single man, age 46 at the time of death, and diagnosed imbecile. He was admitted in 1901 at the age of 25. His family history states that his mother is nervous, his father's whereabouts unknown, and a maternal aunt had been a patient at Danvers. The patient himself had attended grammar school until 14 years of age and had then worked in a factory and as a laborer. The following is a verbatim extract from his history:

"Naturally cheerful, reserved. Used tobacco. Three years ago, during the sickness of a brother, patient was very nervous; never went away. Grandmother and aunt insane. Patient received an injury playing ball. First mental change noticed four years ago while his brother was sick. Patient

was very nervous all summer; lost flesh; pain in head; complained of backache; good appetite; would eat too much. Thinks everyone is against him. Very sensitive. One morning said he felt like killing somebody. This spring he seemed better. He would lie in bed all day in the winter. Poor appetite."

After admission, this man thought he was the victim of a conspiracy on the part of the Chief of Police, a girl for bothering whom he had been committed, and others. He remained in the hospital, having occasional outbursts of temper. In 1905 he became for about a year taciturn and reticent. In 1909 he became so boisterous and disagreeable as to necessitate transfer to the ward where dangerously disturbed patients are kept. About this time he began to express the idea that he had a parasite or a snake in his stomach, which idea persisted until his death. He soon recovered from his attack of boisterousness, and his condition then remained fair, both physically and mentally, until a few months before his death, when he began to fail very rapidly, developed signs of active pulmonary tuberculosis, and died of tuberculosis in June, 1922. Autopsy revealed pulmonary tuberculosis, ascites, pleurisy, chronic myocarditis, chronic passive congestion of the liver and pial edema.

It seems, in reviewing this case, that it is quite possible that the patient may have suffered from dementia præcox. Acidophile degeneration was found in the frontal cortex in six cells per 10 fields, in the precentral cortex in eight, and in the cerebellum two or three Perkinje cells in the whole field showed acidophile degeneration. This is the only case in which I ever saw this condition in the cerebellum.

The second of these cases is a male, age 62 (Autopsy No. 2308, Clinical No. 21829), who was admitted to this hospital with signs of advanced neurosyphilis and died in convulsions. Examination of his brain in the Mann stain revealed acidophile degeneration in 13 cells per 10 fields in the frontal cortex. His case was so evidently neurosyphilis that the possibility of any other condition had never been considered.

DISCUSSION.

DR. A. M. BARRETT.—This paper by Dr. Kelly is a welcome contribution to our knowledge of the histopathology of the brain. What relation these findings have to the clinical disease, dementia præcox, may be a subject for discussion. But the fact remains that these same changes have been most frequently observed in this disorder. We are always interested in efforts at correlation between structure and function, but our experiences show how difficult this is in many instances and how cautious we must be, particularly in a disorder such as dementia præcox, where in spite of many anatomical studies pathological findings have been so varied and where, at least clinically, we see the course and symptoms so largely determined by psychic mechanisms.

I should like to enquire whether the cases that have shown these cell changes have died in acute phases of the disease or whether they have

occurred in phases of exacerbation or with evidences of some somatic metabolic disturbance present during the terminal period. In studying the pathology of dementia praecox it is essential to keep in mind the phase-like character of the disorder. One knows of the very striking differences in metabolic functions during these phases and there is no reason to doubt that brain changes vary in different phases of the disorder. The pathological findings in the deaths occurring in acute phases have varied much from those found in deaths occurring in the more advanced cases without acute phenomena. It is reasonable to believe that the body and brain may be structurally changed in the pathological physiological disturbances that are now so well known from laboratory studies. We must always keep clearly before us distinctions between brain disease and mind disease. We are still very far from the point where we are in a position to correlate these in any extensive way. The acidophile degeneration described by Dr. Gurd and Dr. Kelly is a very characteristic change and is certainly not an artifact and must be due to a severe physio-chemical change present during life.

The work of Dr. Kelly should stimulate much needed further observations in the histopathology of psychiatric disorders.

DR. S. T. ORTON.—I am sorry to have to inject an element of doubt into the discussion of this paper but I have found the Alzheimer-Mann method a somewhat doubtful one in its results. The method gives beautiful preparations in certain types of material but apparently the pictures obtained may vary strikingly because of a wide range of conditions both as regards the material itself and the technique of application of the stain. This is I think to be anticipated in a stain based on a balanced mixture of acid and basic dyes.

When degenerating axis cylinders are stained by this method we find characteristically a reversal of coloration from the normal basic or blue color to a bright glistening red. This acidophilic change in the axis cylinder we today envisage as evidence of degeneration and as such as an evanescent picture. Removal of this degenerated material follows and the acidophilic elements disappear after a comparatively short time. It is a little hard for me therefore to envisage the acidophilic reaction of the nuclei in a case of dementia praecox with onset at 18 years of age, and death at 60, as a result of the psychosis.

Further we must constantly bear in mind the fact that patients rarely die from dementia praecox. Their death is the result of intercurrent disease frequently years after the onset of the psychosis, and for this reason accurate controls in non-psychotic cases dying with the same terminal diseases are essential. I have been so impressed with this need that I am today studying a considerable amount of material from general hospital cases prepared by the same technical methods as the material from psychotic cases.

I have some excellent experimental material, stained by the Alzheimer-Mann method, and I have recently obtained some human material which parallels the experimental in most respects in which the staining reaction fails almost entirely. Aside from possible differences between cat and

human cord the chief points of variance in the conditions of preparation were that the human case died from the complications of a broken neck and the cat by intent, and that the autopsy on the human case was delayed several hours after death while that on the cat was immediate. I have found in many cases that the period between death and autopsy plays an important part in the use of this stain.

I feel therefore that we should have in addition to what Dr. Kelly has offered us a most careful control on 1st, the length of time elapsing between onset of psychosis and death, 2d, the time between death and fixation of the tissues and 3d, whether comparable changes are to be found in non-psychotic individuals with the same death factors as the dementia præcox cases.

DR. KELLY (closing).—In regard to Dr. Barrett's question as to the relation of this to the phase of the disease, I can only call attention to that one case I spoke of, which is by far the most severe degree of acidophile degeneration in this series, in which also sudden death occurred during the early acute phase of catatonia. The other cases vary greatly both as to their duration and as to the phase of their disease, and some of them were of that type of dementia præcox which appears to progress over a number of years.

In regard to this being something which is found in the brain of older persons, along in their sixties, whose psychosis began in early life, the only aged persons in this series of cases is the woman whom I included among the three cases diagnosed dementia præcox who did not show acidophile degeneration, who recovered with a mild irritability and paranoid ideas; other than that she had recovered from the acute symptoms more than 35 years before death and thereafter remained stationary mentally and died of pernicious anemia. She did not show acidophile degeneration. The other cases were in people for the most part under 40.

A COMPARATIVE STUDY OF "CREATIVE IMAGINATION" IN NORMAL PEOPLE AND IN MENTALLY DISEASED.*

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THE PROBLEM.

The clinical observer frequently notices that a patient in a manic excitement when looking, for instance, at a wet spot in the ceiling or at a crack on the wall, interprets these as the concrete representations of meaningful objects; he may recognize the accidental distribution of light and shade as persons, animals, etc. It is said about Michelangelo that he conceived for the first time several of his most famous statues on seeing the rough outlines of a piece of marble, and then released his figure from the stone with the utmost economy of material. Leonardo da Vinci describes in a chapter of his treatise "Della Pittura" how, looking at the surface of an old stone wall, he used to see images of the most varying kind. Similarly a child gazes into the open furnace and sees "fairyland."

If there existed a verb derived from the noun, illusion, just as the verb, hallucinate is derived from hallucination, I would use this verb to denominate the activity exemplified above. As there is no such verb I have chosen for this purpose to use another, namely, "to create images"; recognizing, however, that this term describes the nature of the process less adequately than the non-existing "illusinate."

The following gives the result of an experimental study of this "creative imagination" carried on partly on normal and partly on insane subjects.

* Read at the seventy-ninth annual meeting of The American Psychiatric Association, Detroit, Mich., June 19, 20, 21, 22, 1923.

PROCEDURE OF THE EXPERIMENT.

A meaningless picture was produced by pouring India-ink of different intensities on a piece of thick limed paper and then pressing the paper under a glass plate. In addition some abstract lines were drawn by chance on the picture and a few pieces of white paper cut also by chance pasted on the same. By means of a projection machine this picture could be thrown on a white screen. After the subject had been seated in an easy chair in front of this screen approximately six feet away from its surface, the following instruction was given:

"Now I am going to show you a slide. This slide represents a lot of different things and objects. I want you to tell all the things you recognize in the picture. The picture will be shown to you for two minutes. Tell while the picture is shown everything you see and recognize. Thus you may go on like this: I see a house, a human face, a cat, a hand, a bridge, a tree, etc. Ask no questions while the slide is on. The slide has been made intentionally somewhat blurred, so that you will have to use all your attention to be able to recognize what it represents. But don't let this worry you, only go ahead and name everything you see or even think you see. Two warning signals will be given before the slide appears: "Ready" and "Set," and two seconds after I have said "Set" the picture will be seen on the screen. Have you understood the instruction?"

If the subject answered "Yes" to the last question the instruction was given only once, if not, it was repeated until the subject explained that he had fully understood what was requested of him.

The instruction is, as we see, intentionally formulated in a way to suggest strongly an attitude which ought to stimulate the "creative imagination" we intend to investigate.

When the instruction had been given and fully understood the light in the room was turned out and after the two warning signals had been uttered the picture was projected on the screen. This could be done without any disturbing sounds and without the subject seeing at all the instruments used, his chair being carefully screened in on all sides to eliminate any external disturbing factors.

Every word spoken by the subject during the demonstration of the picture was taken down verbally by shorthand without the

knowledge of the subject. In addition the stenographer marked off in her writing 10-second periods, so that it would be possible, to some extent, to study the continuity of the subject's production. This marking was made as response to a light stimulus given by the experimenter every tenth second.

In this way an exact record of the production of each subject was obtained. We give below one of these records as an example. It is the production of a woman patient in a very marked manic excitement:

I see a crowd of people . . . a man

There is a woman and a child and it seems that there is a sort of a gateway or something—I think there is a steamer. . . .

I should imagine I see Easter lilies. I can also see a tourist . . . he may be a man

and he has his coat or something, may be a kodak camera. . . .

a letter now I should say. It looks very much as if he were going abroad.

It may be on the deck of a steamer. That must be an electric light, it appears to be like a fleur-de-lis. . . .

It seems as though it is on the hurricane deck travelling rather rapidly.

The picture is not very clear, but it seems as if he is dressed in a cap.

I imagine that it is the hold of a steamer—I have never travelled much but it looks like the hurricane deck. I have seen part of a steamer like that.

There is nothing there like a mother though I can see the picture of a child

The man in the cap is sort of drawing something, marking with a crayon, may be free-hand drawing.

In the record above, the beginning of each line indicates the starting point of a new 10-second period. There are 12 such periods for each subject. As we see, this patient has been talking practically all the time—there are no empty or partly empty periods. A record from a normal person or from a depressed patient looks very much different. As a rule only a few of the 10-second periods are filled.

METHOD OF ANALYZING THE MATERIAL.

In the analysis of the productions the important feature has been to distinguish what we have called significant from insignificant words. (Here and all through the paper the discussion of the words deals only with nouns, adjectives and verbs—pronouns, adverbs, etc., having been entirely disregarded in the analysis.) Given below is the key for this distinction.

Insignificant words :

I. Forms of auxiliary verbs have never been considered as significant except in connection with other verbs of significance, when the auxiliary verb and the other verb have been counted as one. Forms of "have" may also be significant when they stand instead of another verb, as in the following sentence : "He has a camera in his hand." (He carries a camera in his hand.)

II. As insignificant have been considered all verbs referring to the ego, as for instance : "I do see, I can not see, etc."

III. Black, white, light, dark, etc., have been considered as insignificant adjectives, light and shade, etc., as insignificant nouns.

IV. Geometrical attributes, such as triangular, square, parallel, etc., have been considered as insignificant, as also abstract shapes, such as cube, pyramid, a round form, even a ball, if not used in such a connection as the following : "I see two boys playing ball," when it become significant.

V. Words as flowers, branches, rocks, even a flower (if not named) a branch, a rock, have been considered as insignificant for the reason that their shape is not very definite.

VI. General statements about the whole picture have been considered as insignificant, for instance the whole picture is said to look like lots of flowers or rocks, like a cave, etc.

VII. All statements not referring to the picture or things perceived in the picture have been considered as insignificant. Example: "This is cruel, doctor. If you are a photographer, doctor, I'd like to tell you that you had better change profession. You are a poor one, etc."

VIII. Expressions as "a sort of" or "a kind of" occur very often in the productions and have been considered as insignificant.

IX. Adjectives referring only to the size of things have been considered as insignificant, viz. : tall, little, small, etc.

X. In indecisive statements, verbs as "look like" and the similar have been considered as insignificant.

Significant words :

As significant words have been considered statements which pick out parts of the picture to represent definite things, such as "a dog," "an elephant," "a steamship," etc., and these things were characterized with adjectives and activities of a type not classified above as insignificant. Examples: "There is a woman

and a child." "There are twins lying in a bed and some sort of a Persian cover, etc." "A man sitting down, holding his hands underneath his chin."

When each production had been analyzed according to this key the following chart was plotted for each subject:

- A: Number of empty 10-second periods.
- B: Period when subject starts to talk.
- C: Total number of nouns, adjectives and verbs.
- D: Total number of different nouns, adjectives and verbs.
- E: Number of repetitions of nouns, adjectives and verbs.
- F: Ratio of (E) to the number of different words repeated.
- G: Number of different significant nouns.
- H: Number of different significant adjectives.
- I: Number of different significant verbs.
- J: Number of words suggested by the instruction.
- K: Total of (G), (H) and (I).
- L: Ratio of (C) to (K).

These 12 categories were designed theoretically and *a priori* in order to throw light upon different phases of the subject's response to the test. (A) gives immediately and at the first look a rough measurement of the amount of words spoken by a subject. (B) shows to some extent the time needed for the subject's attitude towards the test to be enough settled so that he can respond in one way or another. (C), (D), (G), (H), (I), (K) and (L) all deal with the content or quality of the productions. (D) and (E) show eventual perseveration. If one word is repeated several times the perseveration is more outstanding than if two or three words together are repeated the same number of times and that is why the category (F) is established.

NOTE.—Verbs indicating nothing but the perceptual act of the subjects, such as "I see," "there is," etc., have not been considered in the counting of repetitions, for the reason that their repetition is suggested in the directions, which read, "I see a house, etc."

(J) shows to what degree the subject is influenced in his "creative imagination" by the examples suggested by the instruction, "a house, a human face, a cat, a hand, a bridge, a tree."

SUBJECTS.

The experiment was carried out on 50 normal and 35 insane or otherwise abnormal subjects. The normal subjects were prac-

tically all nurses at the hospital; the abnormal were patients there. Of the normal subjects 25 were men and 25 were women.

RESULTS FROM NORMAL SUBJECTS.

The results obtained from normal subjects are tabulated below, Table I being the men, Table II the women. The headings of the columns refer to the categories in the individual charts (see above). A few of these categories have not been considered sufficiently important to give in the tables. The subjects have only been nominated by numbers. In addition their sex has been indicated by letters, M. being male and F. female, and their normality or abnormality by other letters, N. being normal and A. abnormal. Thus N. M. 12 means normal male subject, number 12 and A. F. 3, abnormal female subject, number three. The order of the subjects in the tables do not follow the sequence of dates on which they were tested. Instead they have been arranged so as to bring out in each group the progression in the decrease of "creative imagination" in the different subjects. Thus the first subject in a group has always a larger number of significant words than the second; the second a larger number than the third, etc. These principles have been kept in all the tables.

TABLE I.

NORMAL MEN.

Subjects.	(A)	(B)	(C)	(E)	(F)	(J)	(K)	(L)
N. M. 1.....	6	1	18	3	3	2	6	3
N. M. 2.....	7	6	14	0	0	0	5	2.8
N. M. 3.....	6	1	11	1	1	0	5	2.2
N. M. 4.....	5	2	13	1	1	1	3	4.3
N. M. 5.....	9	4	4	0	0	1	3	1.3
N. M. 6.....	8	2	11	0	0	0	2	5.2
N. M. 7.....	8	2	9	0	0	0	2	4.5
N. M. 8.....	8	1	6	1	1	2	2	3
N. M. 9.....	10	1	3	0	0	2	2	1.5
N. M. 10.....	8	4	12	2	1	1	1	12
N. M. 11.....	9	2	7	1	1	0	1	7
N. M. 12.....	10	2	4	0	0	1	1	4
N. M. 13.....	6	2	22	3	3	0	0	22
N. M. 14.....	10	2	5	1	1	0	0	5
N. M. 15.....	11	3	4	0	0	0	0	4
N. M. 16.....	10	6	4	0	0	0	0	4
N. M. 17.....	10	4	4	0	0	0	0	4
N. M. 18.....	11	1	3	0	0	0	0	3

Subjects.	(A)	(B)	(C)	(E)	(F)	(J)	(K)	(L)
N. M. 19.....	10	2	3	0	0	0	0	3
N. M. 20.....	10	2	2	0	0	0	0	2
N. M. 21.....	11	3	1	0	0	0	0	1
N. M. 22.....	12	0	0	0	0	0	0	0
N. M. 23.....	12	0	0	0	0	0	0	0
N. M. 24.....	12	0	0	0	0	0	0	0
N. M. 25.....	12	0	0	0	0	0	0	0

TABLE II.

NORMAL WOMEN.

Subjects.	(A)	(B)	(C)	(E)	(F)	(J)	(K)	(L)
N. F. 1.....	2	1	15	0	0	1	7	2.1
N. F. 2.....	9	4	6	0	0	2	4	1.5
N. F. 3.....	8	4	6	0	0	2	3	2
N. F. 4.....	8	3	11	3	3	0	2	5.5
N. F. 5.....	9	1	5	0	0	0	2	2.5
N. F. 6.....	10	4	4	0	0	1	2	2
N. F. 7.....	11	10	2	0	0	2	2	1
N. F. 8.....	10	7	7	0	0	1	1	7
N. F. 9.....	10	1	7	0	0	0	1	7
N. F. 10.....	9	2	6	1	1	1	1	6
N. F. 11.....	6	1	23	3	3	0	0	23
N. F. 12.....	7	1	16	1	1	0	0	16
N. F. 13.....	6	1	10	1	1	0	0	10
N. F. 14.....	9	4	8	2	1	0	0	8
N. F. 15.....	11	4	4	0	0	0	0	4
N. F. 16.....	11	6	2	0	0	0	0	2
N. F. 17.....	11	1	2	0	0	0	0	2
N. F. 18.....	11	4	2	0	0	0	0	2
N. F. 19.....	12	0	0	0	0	0	0	0
N. F. 20.....	12	0	0	0	0	0	0	0
N. F. 21.....	12	0	0	0	0	0	0	0
N. F. 22.....	12	0	0	0	0	0	0	0
N. F. 23.....	12	0	0	0	0	0	0	0
N. F. 24.....	12	0	0	0	0	0	0	0
N. F. 25.....	12	0	0	0	0	0	0	0

DISCUSSION.

A comparison of the results from normal men and women shows only very vague tendencies towards sex differences. These differences can be shortly summarized as follows:

I. The instruction given to the subjects undoubtedly contains a strong suggestion and we may assume that it creates an attitude of cooperation and a will to master the difficulties which are im-

plied in the following sentence: "The slide has been made intentionally somewhat blurred so that you will have to use all your attention to be able to recognize what it represents." Confronted with these difficulties of the test, a certain number of subjects resign and remain either silent or state in a short sentence the fact, that they are not able to see anything at all—the last as a matter of excuse for their inability. Subjects belonging to this group are among the men 16, 19, 20, 21, 22, 23, 24, and 25, eight in total; among the women 19, 20, 21, 22, 23, 24 and 25, seven in total. Four of the men, 16, 19, 20 and 21 and none of the women have made the excuse described above.

II. Another group of subjects excused themselves because of their difficulty in seeing anything in the picture, but in addition they reported images which were all of the insignificant type. To this group belong of the men 13, 14, 15, 17 and 18, five in total; of the women 11-18, eight in total.

III. Significant images have been reported by 12 men (subjects 1-12) and by 10 women (subjects 1-10), the total number of significant words given by the former being 33, by the latter 25. As the difference between the standard deviations, figured for each group, is very small, this may perhaps be a definite trait of sex distinction.

IV. The total number of insignificant words given by men is 127, by women 111. As a smaller number of women than men have talked at all—18 against 21—this gives for the speaking subjects a little higher average in the female than in the male group, a calculation that we however do not consider as very indicative.

V. More important may be the following finding: Both among men and women there is a type of personality who speaks many words but few significant ones. This type is in both groups recognized by the high ratio between the total number of words spoken and the significant ones. This type we may call "the talkative normal," and if we assume a ratio above seven to justify a subject being classified among "talkative normal," we find that four women and two men of 25 respectively belong to the type in question.

VI. Words suggested by the instruction have been given by seven men and seven women. The total number of words suggested by the instruction is the same for men and women, 10 in each case.

VII. Eight men have showed repetitions in their production and the total number of repetitions was by them 13. Of the women six showed repetitions and the total number of repetitions by them was 11. The difference between the sexes is probably here of no definite significance.

VIII. The study of the periods when men and women have started to talk shows fourteen men against eight women starting in the first or second period and five men against seven women starting in the third or fourth period. It may be possible that these numbers indicate a more rapid set of the attitude towards the test in male than in female. Whether the man starts his production by excusing himself for not being able to see anything or he reports significant or insignificant images, he rationalizes the confusing impression of the picture by a response earlier than the woman.

The points brought out above do not claim to give any final information concerning sex differences in response to the "creative imagination" test. A few of them may be somewhat suggestive and encourage to further research.

RESULT FROM MANIC-DEPRESSIVE SUBJECTS.

Of the insane subjects 23 belonged to the manic-depressive group. They can be classified in the following sub-groups:

Group I. Very marked manic excitement. Here belong three subjects, all female A. F. 1-A. F. 3. Subject A. F. 1 was tested again after recovery, on the day before her discharge from the hospital, and the result from the different instances will be commented upon.

Group II. Mild manic excitement. To this group belong four subjects, two male, A. M. 1 and A. M. 2, and two female, A. F. 4 and A. F. 5.

Group III. Recovered manics who still are in a somewhat elated mood and characterized by a mild degree of hyperactivity. Here belong four subjects, two male, A. M. 3 and A. M. 4 and two female A. F. 6 and A. F. 7. Of these subjects A. M. 4 was tested the day before discharge from the hospital. The other three were circular cases at the individually normal standard-level.

Group IV. Retarded depressions. Here belong four subjects, three male, A. M. 5-A. M. 7 and one female, A. F. 8.

Group V. Non-retarded depressions. To this group belong eight subjects, three male, A. M. 8-A. M. 10 and five female, A. F. 9-A. F. 13. All these subjects except A. M. 9 may be characterized as agitated depressions.

The results obtained from the manic-depressive insane are tabulated below (Table III) in accordance with the principles underlying the tabulating of data from the normal subjects:

TABLE III.
MANIC-DEPRESSIVE CASES.

GROUP I: VERY MARKED MANIC EXCITEMENT.

Subjects.	(A)	(B)	(C)	(E)	(F)	(J)	(K)	(L)
A. F. 1.....	0	1	71	13	9	0	26	2.7
A. F. 2.....	0	1	66	15	12	2	26	2.5
A. F. 3.....	0	1	64	6	4	0	16	4

GROUP II: MILD MANIC EXCITEMENT.

A. M. 1.....	9	9	15	0	0	0	14	1.1
A. F. 4.....	0	1	30	8	5	1	9	3.3
A. M. 2.....	0	1	45	10	8	0	8	5.6
A. F. 5.....	0	1	53	12	7	2	7	7.6

GROUP III: RECOVERED MANICS.

A. M. 3.....	0	1	31	4	3	1	5	6.2
A. F. 6.....	0	1	61	13	9	0	4	15.2
A. M. 4.....	2	1	34	5	4	1	3	11.5
A. F. 7.....	7	1	17	1	1	0	3	5.5
A. F. 1.....	3	1	33	3	3	1	9	3.7

Patient A. F. 1 after recovery.

GROUP IV: RETARDED DEPRESSIONS.

A. F. 8.....	11	1	2	0	0	1	1	2
A. M. 5.....	10	1	2	0	0	0	0	2
A. M. 6.....	12	0	0	0	0	0	0	0
A. M. 7.....	11	6	0	0	0	0	0	0

GROUP V: NON-RETARDED DEPRESSIONS.

A. F. 9.....	3	1	30	4	4	1	6	5
A. F. 10.....	5	1	16	6	3	1	2	8
A. M. 8.....	3	1	34	6	6	0	1	34
A. M. 9.....	6	3	18	0	0	0	1	18
A. M. 10.....	7	1	12	0	0	0	1	12
A. F. 11.....	2	3	18	1	1	0	0	18
A. F. 12.....	7	1	17	4	2	0	0	17
A. F. 13.....	7	1	16	3	3	0	0	16

DISCUSSION.

A comparison of these tables with each other and with the ones previously discussed brings out the following points:

I. A study of the number of significant words in the first and second of our groups shows decidedly, in spite of the small number of subjects, that the manic patient has a tremendously stronger tendency to "create images" than the normal person. Especially strong is this tendency in the three very marked manics. In the mildly manic it is there in a less degree, although still beyond the upper limit of the normals. Although only a small number of subjects have been studied, we feel persuaded that our material establishes without any doubt this increased tendency in manics to "create images." Clinically this tendency of manics is recognized by the physician in such phenomena as "*personen erkennen*" and the interpretation of abstract shapes, etc., as representations of meaningful objects.

II. In the recovered manics the number of significant words decreases and keeps around the average of normal people. Thus the tendency to "create images" seems to be directly proportional to the degree of excitement as is suggested by a comparative study of the first three groups. The same also is brought out by a comparison of the two test results from subject A. F. 1, the latter of which is obtained after a marked improvement in the patient's condition. The decrease in the number of significant words at the two instances—9 against 26—is very marked.

III. The manic patient gives besides the significant words a considerable number of insignificant ones. The number of the latter does not seem to decrease along with the decrease of significant words and consequently we face the fact that the recovered manic approaches as far as his production is concerned the type of normal that we have characterized as "the talkative." This is expressed in the ratio of all the words to the significant ones in Group III. In discussing the normal subjects we considered a ratio above seven to indicate an individual of the "talkative type." In Group III, two of the ratios, the ones of subjects A. F. 6 and A. M. 4, are far above this ratio (15.2 and 11.5), one of the ratios (subject A. M. 3) approaches seven (6.2), the fourth ratio (subject A. F. 7) is somewhat below (5.5). In Group II, mildly manic

patients, one of the subjects, A. F. 5, has a ratio above seven (7.6), so that already at this stage we may recognize the tendency to approach "the talkative normal." Thus it seems as if in the recovering manic the still somewhat increased psychomotor activity tends to bring about a fluent verbal expression, while the decrease of the tendency to "create images" stamps his production as less significant.

IV. Just as obvious as the increase of the tendency of "creating images" in manic-depressive manics, is the decrease of the same tendency in the manic-depressive depressions. Of 12 depressions in Groups IV and V only one, subject A. F. 9, gave a comparatively large number of significant words. The average for the rest of the subjects is far below the average of normal people. Six of 12 have no significant words at all, four have one each and one has two. There is little doubt that these figures express a definite feature of the depressed phase of the psychosis studied, in spite of the rather small number of patients tested.

V. A glance over the number of insignificant words obtained in the productions of depressed patients gives us a distinction between retarded and non-retarded cases. The former have very few if any insignificant words while the latter have a quite large number. As the significant words in both groups are few, the non-retarded depression approaches in his performance the "normal talkative type," just as the recovering manic does—a fact that is again expressed in the ratios of the total number of words to the significant ones. In Group V seven of eight of these ratios exceed seven, the line above which a normal individual was classified as "talkative." The only exception in the group is patient A. F. 9.

Thus we have seen that the manic patient when recovering approaches in his production the "talkative normal," the same being true also of the agitated depression while still in his abnormal condition. Dare we not then conclude that it is the increased psychomotor activity, which is present both in the improving manic and in the agitated depression, which causes the flow of insignificant words, while another factor which the truly manic possesses is behind the tendency "to create images."

This factor, we may call it the A factor, without theorizing about its nature, is one of the characteristics among others which distinguish the manic phase of manic-depressive insanity from the agi-

tated depressed. This A factor may be possessed to moderate degrees by normal people, as is readily seen from the tables of the normal subjects. Naturally we are not justified in saying that the "talkative normal" with some degree of tendency towards "creating images" approaches the manic although the opposite may be true for the recovering manic. Other features than the ones studied complicate the disease syndrome enough to reject such an interpretation. Still less are we justified in saying either that "the talkative normal" approaches the agitated depression or that the agitated depression, generally speaking, approaches "the talkative normal." This approach is valid only as far as the specific test-response is concerned.

VI. The manic patients begin to talk at once and give as a rule immediately a report of either a significant or insignificant image. The only exception is subject A. M. I, Group II. As a rule the depressed patients also begin to talk at once if they start at all, but, mostly, their first words are a statement that they cannot see anything. This expresses in our opinion a very characteristic feature of the depression, "the feeling of inadequacy." The subject is immediately settled in his attitude towards the test and this attitude is invariably the one of "I can not." Both the retarded and the non-retarded depressions are similar in this feature.

VII. The drawing of any conclusions from a study of the frequency of repetitions and from the number of words suggested by the instruction on the basis of such a small material as the one present may not be justified. The many repetitions among the manics are most probably only a result of the large number of words given. The still higher number of repetitions in the non-retarded depressions may possibly be an expression of a tendency for perseveration, which clinically is recognized in the agitated melancholia. The number of words suggested by the instruction does not exceed very much the normal in the manic group, and in the depressed group the small number is apparently a consequence of the small number of significant words given as a whole.

It may be of interest to state here that the cooperation obtained from the manic-depressive patients in the test was very good. The conditions of the experiment were a great help in getting cooperation. Before the picture was shown the light was turned out, and even the most excited of the manics waited quietly for the appear-

ance of the picture the few seconds this darkness lasted. The sudden appearance of the picture was a very satisfactory stimulus for starting the flow of words, just as the disappearing of the same cut short his flow immediately. As far as the depressions go, even the retarded ones, although their productions may have been null, showed certain signs of conduct indicating a real and strong attempt to cooperate.

DISCUSSION OF RESULTS FROM DEMENTIA PRÆCOX CASES AND PSYCHOPATHS.

Quite differently in this concern acted a group of dementia præcox cases. It was impossible to be sure of the cooperation of these subjects and consequently an evaluation of the results is meaningless. We have not found it worth while to tabulate them. Nine subjects belonging to the dementia præcox group were tested in all. Four of them being of the hebephrenic type, gave comparatively homogeneous performances, with no significant words, and no or very few insignificant ones. The five show varying results, some falling within the limits of the normal, others approaching manics.

Among the subjects tried were besides the ones now mentioned three psychopaths. Two of these gave perfectly normal productions, the third, who by the physicians was described as a psychopath with vague manic-depressive swings, gave a manic performance. This was concomitant to the results discussed above, for the reason that the subject on the day of the test undoubtedly was in an elated mood. He entered the laboratory vivaciously, his face flushing, and greeted the experimenter with exaggerated cordiality.

THE "CREATIVE IMAGINATION" OF THE ARTIST AND OF THE MANIC.

When we have used the term "to create images" to denominate a tendency which is outstanding in manic-depressive manics, we have done so with hesitation, chiefly because the capacity of "creative imagination" as a rule is attributed to artists and poets in the moment of inspiration. The question then appears before us: Is there a relationship between the manic state of a mentally diseased and the state of inspiration? And, if so, which are the

features which distinguish the two states? In fact, there are several evidences indicating that inspiration has traits in common with manic excitement, several verbal and written documents of creative artists and their biographers depicting the mental state of intense creation. When Michelangelo painted the Sistine Chapel he is said to have worked in an exalted state of mind which has been even described as a rage. Chinese sources tell us how several of the great Chinese painters practically drugged themselves before they went to work in order to liberate the imagination. As a distinguishing feature between the manic state and the state of inspiration, we venture to suggest the persistency of motive. The manic according to a statement of Dr. S. E. Abbott is characterized by the fact that in each of his activities he has a motive that from his standpoint is rational. In this concern he differs from the dementia praecox case where the same is not true. From the inspired, on the other hand, he seems to us to differ in the following respect: His motives, although rational in his eyes at the moment, are changing invariably, just as the trends of activity, while the inspired carries a multitude of activities and thoughts towards a persistent final goal. We have had the chance to study daily for more than a year a male manic patient, who during his most violent excitements was unusually free from confusion. This man could for days plan means of injuring nurses towards whom he had acquired an unreasonable hate and at last carry out his plans. At these occasions we would say that the man worked under inspiration. Stating this we recognize that the aim of an inspired need not necessarily be artistic creation but any kind of activity. At other instances the same patient used to write very beautiful poetry. A clear manic, like the patient mentioned is, however, rather rare. As a rule the variability of motives is characteristic of this phase of insanity. May it not be true also—this is another suggestion related to the question under discussion—that several of these great men in history, who are said to have accomplished important things in a hypomanic state, just as well can be said to have done this in inspiration. Has not their state of mind been a combination of manic liberation with creative imagination on one hand and a strongly persistent motive of activity on the other.

The discussion taken up above, has been initiated chiefly to bring out the fact that there is a tremendously interesting problem for

investigation in a parallel study of the manic excitement and the state of inspiration, a study that may be of value both for psychiatry, for psychology of genius and for æsthetics.

SUMMARY.

Subjects.—Fifty normal people, 11 manic-depressive manics, 12 manic-depressive depressions, nine cases of dementia præcox and three psychopaths.

Procedure of the Experiment.—A perfectly meaningless picture was shown to the subjects for two minutes. Previously an instruction was given, suggesting strongly to the subjects, that the picture is a representation of meaningful objects and urging them to report everything they see. The report was analyzed with emphasis on the relation between significant and non-significant statements. By the former are meant statements picking out parts of the picture as meaningful objects.

Results.—The study of the normal group showed certain tendencies of sex differences. The 25 men gave together a larger number of significant statements than the 25 women, and thus seemed to have the capacity of "creating images" more strongly developed. Both among men and women there was a type of individual who talked a large number of words but few significant ones. To this "normal talkative type" belonged twice as many women as men. The attitude of the male subjects to the test was set more rapidly than the attitude of the female.

The manic-depressive manics gave a considerably larger number of significant statements than the normal, thus showing an increased tendency of "creating images." The recovering manics approached the "normal talkative type" in their productions.

The study of the manic-depressive depressions distinguishes the retarded depressions from the non-retarded ones. The former gave a much less number of both significant and non-significant words than the normal, thus showing a decreased tendency of "creating images." The non-retarded depressions gave also a small number of significant words but quite a large number of insignificant ones. Consequently they approach in their performance the "normal talkative type," just as the recovering manics do.

The attitude of the depressed subject was always easily set and about invariably the one of "I can not." This is the phrase with which they mostly begin their productions and we consider their attitude as a beautiful expression of the "feeling of inadequacy" which is a characteristic symptom of melancholics. The non-retarded depressions showed a stronger tendency of perseveration in their productions than any of the other groups.

The test result from dementia *præcox* cases and psychopaths shows a variability of features which makes impossible any general conclusions.

DISCUSSION.

DR. THOMAS H. HAINES.—This excursion of psychometry into the field bordering between imagery and the emotional background of imagery, carries me back to one made by Francis Galton. Some of you will recall that Francis Galton narrates in his "Inquiry into Human Faculty," the results of a very simply conceived experiment in the execution of which he said, on successive occasions to various friends, "I am going to tell you a story. I am going to tell you a story about a boat." At this point he said to each "What did you see?" A very interesting contrast came out between the man of science and the young lady with no particular training in philosophical studies. The man of science usually said, "I see nothing at all. I was waiting for you to continue your story." The young lady said, "I see a boat at the dock. It has white sails. I see a dozen men, women and children. They have baskets. It looks like a picnic party. They are evidently going on an excursion across the bay."

Dr. Lundholm has made a much more elaborately controlled excursion into this field. He has carefully studied images and ideas in relation to their emotional background. I cannot begin here to assess his work. It seems to me exceedingly valuable. It is likely to give us a point of view and facts of great use in the field so graphically laid out last evening by Professor Warner. This report of research points to the kind of training the psychiatrist must possess himself if he renders effective service in the field of social psychiatry and service which will be appreciated by lawyers and judges.

DR. ABBOT.—It seems to me this is an exceedingly interesting attempt to standardize a method of investigation. Any test is better if it is standardized than if it is a hit or miss question, such as Dr. Haines says that Francis Galton tried in his earlier experiment. Every psychological experiment requires more than one type of activity in responding to it—one cannot test an isolated activity alone. I would like to ask Dr. Lundholm if this test is not first one of suggestibility and then one of creative imagination in those who are suggestible? His observations show not only that certain persons are suggestible, but what is suggested. He characterizes the responses into those which are significant and those which are non-significant. It seems

to me that a further elaboration of the replies might give an exceedingly interesting and valuable insight into what types of things are suggested, under the conditions of the experiment, to those who are suggestible.

May we infer from Dr. Lundholm's paper that men are a little more suggestible than women, but that women are a little more talkative?

DR. LUNDHOLM (closing).—The subjects when going through this test were tested for their suggestibility also. There is no high correlation between suggestibility and "creative imagination" in the normal group. So I do not think perhaps it is so much of suggestibility. Of course the whole attitude of the subject must be: "There is something in the picture and I have to see it." That is what there is of direct suggestion. Then there is this direct suggestion from the sentence which gives example of things: Thus you may go on like this: "I see a house, a human face, etc. Those are the direct things suggested, and as we can see, many of the subjects have hit on these things.

Among non-retarded depression it is very interesting to study the number of repetitions in the production. This number is very much higher than in any other group.

SOME OBSERVATIONS ON THE TREATMENT OF THE PSYCHONEUROSES.*

By GEORGE J. WRIGHT, PITTSBURGH, PA.

In view of the profoundly scientific and philosophical papers on the psychoneuroses you will listen to today, I feel like making an apology for presenting a relatively common-place discussion of the treatment of these types of nervous disorder. But the neuro-psychiatrist in a large city may be looked upon as the one who is in direct contact with all kinds of problems, and it may be of interest to know in what way he meets them, and what influence recent intensive studies in psychopathology have had on him. Our knowledge of these conditions has been enormously increased—so much so that the old fashioned neurologist has seen his specialty gradually splitting into neurology proper, psychiatry and psychopathology. In a practical way in general neuropsychiatric practice, the standing of the old fashioned neurologist is still secure and he must meet and does meet all problems that present themselves to him. He stands on "the firing line" so to speak, and with all his apparent failings and mistakes deserves the tolerant understanding and sympathy of men "behind the lines" whether in hospital practice or not.

I am sure neuropsychiatric practices vary greatly in the kind and amount of material, and I therefore thought it would be interesting to look over my case records to determine the relative proportions of the various types of nervous disorder. It is very necessary for the purposes of this paper to show this diversity of problems in contrast to that of more refined and restricted fields. I shall consider the material from my office practice, which is by far the largest, and not hospital or consultation practice. Consultation practice for obvious reasons includes chiefly psychotic and organic cases, and general hospital practice chiefly organic cases, and their inclusion would only distort the figures. In general it may be said

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that of 100 consecutive ambulant office cases, the vast majority referred by other physicians for an opinion and treatment, there will be:

- 35 organic cases.
- 14 epileptics.
- 13 psychopathics.
- 6 endocrinopathics.
- 6 unclassified types.
- 26 psychoneurotics.

I am sure that individual bias or ability in diagnosis would change these proportions, but in brief the point to be made is that about one-fourth of one's individual practice is concerned with the psychoneuroses. Of these 26 cases in 100 (one-fourth of my practice) 18 are classified as mild or benign, and 8 as severe or pernicious. The importance of this subdivision will be stressed in detail later on.

As this paper deals with treatment chiefly, no time will be devoted to the mechanism or the symptomatology of the psychoneuroses. I would, however, emphasize the necessity of exercising the greatest care not to overlook somatic disease. It is an old warning of course, and yet its repetition will not prevent us from forgetting it. Focal infections, general infections—as particularly lues and epidemic encephalitis—cardiovascular-renal disease, and malignant disease of the viscera not infrequently are responsible for presenting symptoms of psychoneurotic type. In hospital practice particularly I have been forced to stand out against the discouraged or perplexed surgeon or internist more than once. That the nervous symptoms may be real, with their source in some change in the psychologic or vegetative mechanisms, does not make them any less organic in origin after all. The attack is of course primarily on the cause. But having eliminated all possibility of organic disease and having decided there is a neurosis or a psychoneurosis the problem is at once that of a most intimate study of the patient. As time goes on I find myself less and less concerned with an academic diagnosis, but more and more with a complete detailed study of the patient himself, particularly his mode in life, his problems, his recent experiences and the background of his life in general. In the majority of instances a great deal of information is obtained in the first examination, and as a rule each case

will gradually fall into certain of the well-known groups: neurasthenia, anxiety-neurosis, conversion hysteria, compulsion neurosis, or mixtures of them, but this I feel is by no means the important thing. The method of approach is the same. But the thing that soon stands out is the impression one gets of the seriousness of the situation. For practical purposes I would therefore classify the cases as benign or malignant. This is dependent on the simplicity or easy accessibility of the cause or causes, the degree of fixation of the disorder, and the nature of the sub-soil or background, the last conditioned by hereditary factors, early training, education and the like. Neurasthenic states, anxiety-neurosis, anxiety-hysteria and simple depressions easily stand out as the majority of cases. In my experience these cases are usually benign. They are relatively easily approached and in a variable length of time are relieved or cured. There are other cases, however, chiefly belonging to the so-called psychasthenic or better compulsion neurosis group where the difficulties in study and cure are so great that it is proper to look upon them as pernicious or malignant. The mechanisms are so concealed and complicated by secondary reactions and fixation so pronounced that no one can deny the difficulties and uncertainties of a cure.

Now in studying the patient and his symptoms as intensively and intimately as possible I have found that the so-called Freudian technique is not necessary in the majority of cases. Tact and courage are required, but most of all some conception of the ordinary or usual difficulties in the lives of people, in order that one may make short cuts to the heart of the trouble. It is perhaps a matter of personality or skill, or both, but it is a surprising thing how much information may be obtained in a relatively short time. The so-called fore-conscious and sub-conscious are admittedly accessible. How fortunate for doctor and patient this is will be spoken of later.

After such a method of approach and study it is usually an easy matter to show the patient his trouble in relation to cause, but in my experience that does not by any means bring a cure. For the physician, however, the victory is partly won because he has the conviction and assurance that comes from understanding his case. It remains to show the patient that the way out is not by means of a bottle of medicine, or massage, or a sanatorium, or a trip, but

through adjustment to his difficulties, straight thinking and a realization of his responsibility as an individual to the whole in its widest sense. This means, therefore, that no one remedy can be proposed. Each case varies greatly in its details, but the essential treatment is one of firm and forceful but sympathetic reeducation and readjustment. I have sometimes found it a very difficult matter to get the patient to follow me in this—especially so in those cases in which there are physical manifestations of the psychoneurosis at the vegetative or sensori-motor levels. I then depend on descriptive psychology with the free use of familiar example to show that in all emotional states, even fleeting ones, particularly fear, anxiety, apprehension and depression, there are certain definite automatic physical expressions, especially in the cardiovascular and gastro-intestinal systems. The somatic manifestations in conversion hysteria are much more difficult to explain, of course, but this can usually be done. Instruction of this sort requires firmness, persistence and repetition.

As regards adjuvant treatment, such as medicine, baths, rest and massage, I feel these still have a place, but a minor place. In true neurasthenic cases—in the strict sense—and in all cases where definite fatigue is a factor, rest in bed for a variable length of time is indicated, but these asthenic cases are really rare in the course of a year's work. Formerly I used to follow a modified rest cure with hospitalization for from six to eight weeks pretty regularly, but for several years past I have adopted the plan of keeping the patient on duty, "in his job," as much as possible, and if not at work to return to work at the earliest possible moment. Work is a diversion, rest increases the introspection. The ordinary principles of sufficient rest, exercise, diet and sleep are employed, but definitely ordered, watched and controlled, for these patients must have a plan to follow. The question of weight is a very important one, and aside from the physical benefits there is a marked psychological effect in increasing the weight of the thin and reducing the weight of the fat.

In brief then, most of the cases seen are ambulant and but few are recommended hospital or sanatorium care. The principle taught is one of advance as against one of retreat. The patient is helped in every way to follow through, but not at the expense of the physician's strength or the patient's morale. Visits to the office are

controlled, at first weekly or bi-weekly intervals, and then less often. A ban is put on useless 'phone calls. Visits to the home are usually not made at all.

These principles have worked well in the benign cases, and in some of the more cooperative of the malignant or pernicious cases. Nothing new can be claimed for the method. It is not Freudian, but acknowledgment is made to those who have enunciated the principles of dynamic psychology. I feel it meets the real situation face to face. Some men can cure by a formula, by a static machine, by personality and renown; for myself the remedy only follows understanding.

Now there are a certain number of cases in which this method will not work. I indicated in the beginning that of 100 consecutive cases, 26 (about one-fourth) were psychoneuroses. Of these, 18 were classified as benign and 8 as severe or pernicious. By hard work, time and good cooperation perhaps four of these eight cases could be benefited. This leaves the problem of four admitted failures—usually belonging in the group of the compulsion neuroses. I believe the difficulty in these cases should be recognized and for some time I have frankly admitted it to myself. Intensive study over a long period of time is required, and I have felt that I had neither the time nor the disposition nor the training to attack these cases. I am of the opinion that many of them are incurable, but inasmuch as psychopathologists have attacked the problem and claimed results far out of proportion to what I have personally obtained, I think in justice to the patient he should be referred to men devoting especial time to this kind of work. These patients are usually badly treated. I suspect that many excellent but over-busy men allow them to eliminate themselves in discouragement and are not sorry for it. In recent years, therefore, I have been side-stepping some of these cases and sending them elsewhere. I am willing to believe that psychopathology and psychoanalysis in the hands of the most expert will prove its right to an independent place in the practice of the healing art.

The purpose of this whole paper is to show that the majority of the neuroses and psychoneuroses as seen in an active neuropsychiatric practice are benign and open to relatively easy approach and cure. Perhaps old fashioned methods would benefit the majority of these, but the facts of dynamic psychology must be

recognized in the interest of truth. The method is naturally one of reeducation and readjustment. In the relatively few pernicious or malignant cases the same methods are advisable, but some of these cases are so complex in their development that a disproportionate amount of time and effort is required, and it is recommended that in the interests of a square deal such patients be referred to men specializing in this direction.

DISCUSSION.

DR. OBERNDORF.—In discussing the question of recovery in the psychoneuroses introduced in the paper just presented, we should have some more accurate conception of just which types of neuroses are included in the benign and which in the pernicious groups. Under the severe, stubborn or pernicious group we should have to place the compulsion neuroses and the anxiety neuroses. Under the milder type come the conversion hysterias, the milder neurasthenic reactions and some of the "actual" neuroses of Freud. The figures as to recovery or improvement presented by Dr. Wright correspond with those which I have found to exist in dispensary practice, although in private practice my experience has been limited to severer types of neuroses where the outlook is not very favorable except through long and diligent psychotherapeusis. There is no question that some of the simpler and superficial psychotherapeutic and physical therapeutic measures may be of benefit in mild neuroses. Superficial disorders can often be benefited by advisory measures on the part of the physician, but in the long standing compulsion neuroses and their psychologically near relations, the only satisfactory method of approach is the psycho-analytic.

By obtaining a good deal of information from the patient, which is in itself usually a slow proceeding with the sensitive neurotic, the physician may be in a position to advise him. Sometimes this helps, but most often the patient himself has a very keen appreciation of what he should do and finds himself thoroughly in sympathy with the advice given by the physician, but because of his inhibitions is unable to carry it out. Undoubtedly, the most efficient method of treating most psychoneuroses lies in tracing the origin of the inhibitions and unconscious resistances engendered by them, to their earliest sources, and in attempting to remove those inhibiting factors which prevent conscious freedom of action. This works far better than advice, because most neuroses are closely connected with conceptions dating back before the age of six.

Let me give you a brief example of some factors back of a psycho-neurosis. A very intelligent man, aged 54, came to me with a fear of cutting the throat of his father who was still alive at 77. Upon investigation one found that while this particular idea had been with the patient only 12 years, he had suffered from many neurotic physical symptoms since boyhood. He had begun masturbation at the age of eight or nine and while at college was told that a person who had masturbated could never

marry because he would find himself impotent. He continued in his habit up to the time he consulted me but had made no attempt at heterosexual indulgence. The important point in this case was not that the patient had masturbated, but whence his resistances to heterosexuality arose. These could be definitely traced to childhood incest fantasies which created a sense of great guilt in regard to heterosexuality in general which he could never overcome. I might add that the analysis which lasted eight months resulted not only in marriage with successful performance of marital obligations on his part, but also in relief from gastric and locomotion disturbances for which he had been treated by medicinal procedures since the age of eighteen.

Until one has spent several hours with a neurotic patient it is difficult to say whether the condition is "benign" or "pernicious." Some persons very profoundly mentally sick have very few tangible symptoms. Each case, therefore, must be judged individually and handled accordingly. It should be approached from the subjective standpoint of the patient and not from the objective interpretation of the physician.

DR. McCORD.—I don't know why I should be called upon to add anything to this discussion, unless it is, like Dr. Wright, I am seeing a number of patients referred by general practitioners for nervous disturbances. Perhaps, the cases that I actually attempt to treat, might fall into a more highly specialized class. I have under treatment usually only eight or ten cases at any given time and the work is necessarily intensive. I think the first thing that we must bear in mind is that we must consider these cases in a very intensive fashion in order, as Dr. Wright stated, to eliminate the possibility of somatic disorder. They nearly all come complaining of physical disorder and present physical symptoms. Most of the patients I see have been to six or eight physicians and to the Life-Extension Institute, perhaps, and to a neurologist or two and have had various physical examinations. They all have been encouraged and told there was nothing wrong with them. In fact, their usual statement is that all the doctors have told them they were to go home and forget it; and it is remarkable how much alive many of these cases are to the very inadequate approach that has been made to their condition. I don't think it matters very much what name we give to the method we use when we attempt treatment of these cases; whether or not we pursue a strictly orthodox Freudian technique. I think the essential thing to keep in mind is that these patients must be brought to see the mechanisms underlying their symptoms. There are many ways of bringing this about. I do not think we should be afraid to say we have followed analytic technique. I have in mind a patient who is still under treatment after a year and four months, a highly trained technical worker, inventor, which fact emphasizes the point that the gentlemen who discussed Dr. Wright's paper made, viz.: that these cases are not cases for two or three weeks' attention and assurances in the fifteen- or twenty-minute office appointment which frequently prevails under the encouragement method. There are cases—many of them—that we should not undertake

the cure under a year or a year and a half perhaps. They must be very highly selected. This particular man I have reference to has been presenting symptoms hinging around conflict with his position in a large organization for which he works, and so far as relief is concerned it has come by his coming to recognize the mechanisms back of the symptoms. I will have to differ with Dr. Wright on that point; this patient and many similar cases do experience very distinct relief with no further therapy than just breaking into the mechanisms underlying the symptoms, and securing the consciousness of these mechanisms. This particular man has been the victim of a very pernicious father domination, lasting even to selecting his college for him and selecting the organization into which he was to go, and the resistance to this father domination has been transferred to the organization for which he works and to the man particularly who is directly above him in the organization. The recognition of the mechanism involved has relieved him entirely of his symptoms in reference to the job. He stopped talking about getting out of the organization where he was a very valuable man just as soon as he understood his antagonisms and compensating swings.

I might cite many mental delinquents with these same mechanisms we see in the so-called functionally disturbed patients. We should be getting hold of these younger people, especially if they have developed conduct disorder. The work Dr. Thom is doing in Boston, to my mind, is the most valuable avenue of approach because it is acknowledging these cases in their embryonic forms.

As I have said, I don't think that any of us who are handling these neuroses and psychoneuroses after interpretative methods have any business to attempt treatment until they have been considered completely from physical and neurological standpoints.

I think Dr. Wright's figures about agree with the cases I see; about 30 per cent probably in the cases I see in consultation, are cases of psychoneurosis, while a much higher per cent of the cases I accept for treatment would of course fall in that group.

DR. BRILL.—Dr. Wright's interesting paper, as I understand it, tells us in brief that when it is a question of a psychoneurosis we have to go into the life of the patient, and not just treat him in a desultory manner. Somehow I cannot agree with his figures. I believe they are too conservative. I would also like him to tell us something about the cases that he calls "psychopathic." What does he mean by psychopathic? The truth is that the word "psychoneurosis" is a very broad term and basically means really nothing. I might say that some of the cases mentioned belong to the mild depressions of manic depressive insanity. Some so-called psychoneuroses of the neurasthenic type are the initial stages of dementia praecox or paresis. I would also like to know what Dr. Wright means by "pernicious neurotics." Is it not possible that some of those pernicious neurotics were really psychotics, or that they were well developed neurotics who would have been benefited by analysis, as Dr. Wright readily admits?

In fact, I believe that the latter cases can only be cured by analysis. Dr. Wright gives the impression that he is not a Freudian, but does speak of "foreconscious mechanisms, conversion hysterias," etc. Of course, these are Freudian terms, which one can find in no text book before Freud. Why not give credit where it belongs.

DR. THOMAS J. HELDT.—I merely wish to emphasize just a few of the splendid observations made:

First: Possible complicating somatic disease must receive consideration in the study of each and every case of psychoneurosis.

I cannot agree with Dr. Brill in including among the psychoneuroses only those symptom-syndromes that are wholly free from organic factors. Organic pathology is not infrequently an important element in the etiology of a psychoneurosis.

Secondly: The importance the patient attaches to his condition must also receive adequate weight. The psychoneurotic comes to the psychiatrist for a purpose. He comes for treatment and often considers himself seriously ill. Hence, if only for those reasons alone, the psychiatrist must give proper attention to the patient's demand upon his time. With the granting of such attention the psychiatrist more promptly obtains a fuller understanding of the patient's difficulty. As a consequence the patient gains confidence in his physician and half of the problem of therapy is solved.

Individualization is one of the keynotes of Dr. Wright's paper, and upon it depends much of his success in treatment. I would add just a word to his statements in reference to grouping his psychoneurotic patients into benign cases and those of more serious nature. Those grouped as benign include the majority of the cases and are those that yield to a form of treatment that cannot be regarded as being truly psychoanalytic. The treatment generally applied to the benign cases is, in its lowest terms, little more than repeated, frank, common-sense, "heart to heart" talks with therapeutic explanation at the level of the patient's understanding. With the full-fledged and more serious psychoneuroses the problem is different. Differential diagnosis, detailed review, and the closest study of each individual case is imperative. Incipient psychoses must be excluded. All the ingenuity the psychotherapist can muster is often needed, and it is cases selected from this group to which psychoanalysis is most applicable. Many of them are beyond the time and the experience of the general practitioner and even the ordinary neuropsychiatrist, and hence should be directed to the psychoanalyst or other appropriate ultra-specialist.

THE PRESIDENT.—The Chair regrets that we cannot give more time to general discussion, but will have to call upon Dr. Wright to close the discussion in order to save time for other readers.

DR. WRIGHT (in closing).—I read this paper with a great deal of trepidation. Dr. Harry Solomon, my friend, will tell you that at the last moment I tried to get out of it because of some mechanisms of fear, perhaps, but now that Dr. Brill is out of the way, I feel better. I do not see why I may

not accept some of the terminology of the Freudians; why I should not accept the fore-conscious and the subconscious, and make no mention of the unconscious. And if I like the word the conversion hysteria, why should I not use it; and if I say that the basis of my treatment is that of an intensive study of my patients, taking in all the factors in their life history, why cannot I use that material in the light of dynamic psychology without proclaiming myself an out and out Freudian. In other words, I have made the admission that we have learned a great deal from these men who have done so much for the study and treatment of the psychoneuroses, but the point I wanted to make was that in my experience at least, the majority of the cases were relatively benign and responded to a relatively intense, sympathetic and constructive type of management. I have always believed the whole issue was beclouded by not differentiating the mild accessible type of case from the severe inaccessible one of complicated and obscure psychogenesis.

I am an Episcopalian and I am quite sure that there are all kinds of Episcopalians, but subscribing more or less to the fundamental doctrines; and in the same way, I consider myself a neuropsychiatrist who is open to anything new of value in the handling of a patient, although I cannot accept all of the ideas which have been presented to us. The point is that as a man on the firing line, I have problems to meet, and I do the best I can. I feel that if generally I can take care of three-fourths or more of the psychoneuroses as they come to me, I have done my little bit in the problem of the healing art.

SOCIO-PSYCHIATRIC DELINQUENCY STUDIES
FROM THE PSYCHOPATHIC CLINIC OF THE
RECODER'S COURT, DETROIT *

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In view of the greater and greater realization of the socio-psychiatric implication in crime, it was thought that it might prove of interest to undertake and present an analysis of a large local group, from this point of view, although, to be sure, such a venture seemed, at the very least, distinctly one of temerity and supererogation, in view, particularly of the classic reports already presented in this field by such workers as Healy, Glueck, Adler and Anderson. Nevertheless, inasmuch as the local series is very much larger than any of the groups hitherto reported and inasmuch as this study was undertaken from a somewhat different angle in certain respects, it is felt that such a survey-report may validly have a place, if only in mass endorsement of previous findings, as indicated.

The present survey was made over the material of the Psychopathic Clinic of the Recorder's Court, Detroit, organized under the direction of Dr. A. L. Jacoby, in 1921, the Recorder's Court representing the Municipal Criminal Court of Detroit, with seven presiding judges, and having jurisdiction over all adult criminal offenses, that is, all felonies and misdemeanors, ranging from mere traffic violation to homicide and murder and affording, therefore, a much more broad acquaintance with the offender group, in relation to society, than might be secured from an exclusively prison population.

The full long-case material of the clinic, at the time of the beginning of this study, January 1923, totalled some 2500 cases and may be considered as essentially representative of the general court offender group for although technically, for the most part of (lay)

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referred type, being referred by the judges, it checked extremely closely with the findings over the very much greater number of routinely examined short-cases. This total was sifted through and those cases selected for study-analysis which were determined as of sufficiently complete work-up and which had been bona fide court cases, that is, cases not referred for special examination from other agencies than the court. This selected number totalled 1988, and of this total, 1509 were males and 479 females, including 231 negroes, the total number studied therefore being definitely greater than the groups hitherto reported, thus over three times as large as the group studied by Glueck,¹ at Sing Sing, and twice as large as that reported from the Boston Municipal Court by Anderson;² our analysis, additionally, including special comparative studies over the female and negro units.

On a percentage basis, 75.9% were males and 24.1% females, with 11.6% negroes indicating, for the sexes, as compared to the homologous age group for the municipality (adults over 21 in Detroit, 1920 census), a ratio of 7.5 to 2.4, in the court group, as compared to 3.6 to 2.7 in the general population, there being 36.2% adult males in Detroit as compared to 27.8% adult females. For the negro, the ratio of males to females was somewhat higher thus 8 to 2. Of course, this comparison as to age groups between the crime material and the general population is, technically, only approximate but nevertheless inference, even with this qualification, is quite apparent and quite in keeping with reported statistics upon other criminal groups.

As regards the negro fraction, further, a striking contrast appears as compared to the general negro population for Detroit, thus a ratio of 11.6% in the first group to 4.1% in the general population and while, of course, this figure, also, is open to the same objection, as brought out in connection with the adult male and female groups, that is that the age distribution in the court and in the population may not be altogether homologous and also that the negro, due to prejudice, may be more subject to arrest, yet even with such qualifications, it is readily apparent that this group is, at the very least, distinctly over quota in representation in the crime unit.

The criteria actually utilized in this analysis, aside from those already brought into view, were the ages of crime commission, in

age increments of 10, personal nativity, parental nativity, heredity, family situation, domestic situation, civil status, somatic status, personality type and general habit reaction, occupation, education, charges preferred, disposition, intellectual endowment, psychiatric status and finally recidivism, all studied in terms of total, sex and color. The data thus secured is presented in the following and in that order.

First, as regards the ages of crime incidence, for the total it was found that 15.3% of the offenders examined were between 17 and 20, 38.5% between 21 and 30, 27.5% between 31 and 40, 11.5% between 41 and 50 and 7.2% over 51. The specific groups parallel (Table 1) this general ratio quite definitely, the only gross deviation being indication of a somewhat lower age predilection in females and negroes.

TABLE 1.
AGE OF CRIME COMMISSION.

Age	Per cent of total	Per cent of males	Per cent of females	Per cent of negroes
17-20	15.3	15.0	17.6	19.7
21-30	38.5	36.2	40.8	40.8
31-40	27.5	28.7	25.5	25.9
41-50	11.5	12.4	10.9	8.8
Over 51	7.2	7.7	5.2	4.8

For the whole the greatest incidence appears in the 21-30 group, with the 31-40 and 17-20 groups second and third as might be expected and rather strikingly in agreement with Glueck's findings, his average age being reported as 25 for his group of male prisoners.

As to nativity, with the adult foreign-born population in Detroit estimated at 40.1% in the census of 1920, and the native-born of foreign parentage 25.7%, our figures showed 33.3% of the crime group to be foreign-born and only 17.5% to be native-born of foreign parentage, thus both groups falling definitely very well within quota as allowed by the general population statistics, a point definitely in favor of the immigrant and individuals of foreign parentage who, in spite of the definitely admitted strain attendant upon recent and radical milieu-shift, nevertheless, so far as regards crime, at least, manage to keep extremely well within their population fraction-quota. This, it might be mentioned, is in thorough accord with Glueck's findings, he having determined 35% foreign-born in his

Sing Sing group, that institution drawn from a general population containing a somewhat higher percentage of foreign-born than native-born. As might have been anticipated, a somewhat higher proportion of females to males occurred in the foreign-born Detroit crime group as compared to the general population, thus the ratio of foreign-born females to males being 2 to 3 as opposed 1 to 2, in the adult foreign-born general population group.

In the foreign group, further, there were 28 countries represented as compared to 24 in Glueck's material and the nationalities outstanding were the Poles, Canadians and Austro-Hungarians, in per cents to the total, of 23.9, 14.6 and 10.9, contrasting strikingly, due probably to difference in local conditions and situation with Glueck's findings where these groups were reported in per cents of 0.0, 1.9 and 8.4. The nationalities predominating in his group were the Italians, Russians and Germans, in per cents of 31.9, 27.2 and 11.7 respectively the same being but negligibly represented in our group, thus respectively by per cents of 4.0, 6.0 and 7.0.

From the standpoint of familial influences, first as regards heredity, 14.1% were found to show neuro-psychiatric heredity of definite clinical valence in the parents and grandparents, and 20% in the immediate ancestry showed evidence of constitutional conditions of blastophoric type thus tuberculosis, heavy alcoholism and lues. Both of these figures would undoubtedly be higher were it not for a certain difficulty encountered in securing complete anamnesic data in this field.

As regards the immediate family situations, it was found that in 41.7% of the case total, the family situation was definitely unfavorable in the sense of attendant poverty, disease, dissolutism, disagreement, desertion, lack of training and social advantages for the offenders and early abandonment, by the latter, of the family circle. The specific groups run in parallel save for a somewhat higher incidence in the females 44.5% (males 39.2%) and lower, 33.9%, in the negroes, explainable, perhaps, in the latter case, through the fact that distinctly less satisfactory anamnesic data was securable in this group.

As to the domestic factor, this was found to be definitely abnormal in the sense of present poverty, ill health, dissoluteness, disagreement, divorce and unemployment, in 39.6% of the total, with

a consistent paralleling for the specific groups (Table 2), save for indication of definite predominance in females and negroes as might have been expected also, and as is checked up, for the former at least, by the separation-divorce figures, thus there having been determined a 20.1% divorce rate in the female representation as opposed to 10.3% in the male group, that is, just twice as great, supplying a striking contrast with the situation obtaining in the general population group where for individuals, over 15 years of age 0.8% of the females and 0.6% of the males are of this status. Glueck, it is of interest to note, found only 0.3% of his Sing Sing cases to be divorced.

Further, as regards civil status, for the total in the crime group 46.3% were found to be single, 36.1% married, 12.3% divorced and separated and 5.5% widowed. Of the males 49.2% were single and

TABLE 2.
INCIDENCE OF ABNORMAL DOMESTIC SITUATIONS.

Per cent of total	39.6
Per cent of males	35.6
Per cent of females	53.6
Per cent of negroes	45.3

of the females, 34.0% showing as compared to the general population, where 35% of males are single and 27.3% of the females, a striking contrast, 14.2% above the single quota on the male side and 6.7% for the females; that is, in the crime group, there was over quota as to single and separation-divorce types.

In the matter of physical status it was found that in only 8% was there less than average good health, that is, ill health of such a degree as to represent actually effective social handicap—a figure somewhat less than Anderson's, 33%. A venereal incidence of 21% was determined with 8.8% lues, approximating the normal range, rising of course, distinctly higher for the negroes, 35% as compared to 21% for the total, with 21.7% lues as compared to 8.8% for the total.

In the matter of general personality reaction and habits, this figure was found to be definitely abnormal in 67.7% of the total, in the sense of unequivocally abnormal instability, irresponsibility, irregularity, inadequacy, alcoholism, drug addiction, sexual loose-

ness and other social vices. The males showed a percentage of 69.4 and the negroes 62.9 as compared to only 58.2% in the females. These figures are extremely high and most suggestive. As might be expected, also, from these figures, for the female group, there was determined an extremely high percentage of associated sex delinquency, 41.7%, well in keeping with findings for our female group in other respects, as indicated, thus crime-age, family and domestic situations, divorce and, as will be pointed out later, education and native intelligence.

By occupation, it is interesting to note that the labor group comprises 48.6% of the total, those in trades 50.4% and the professions only 1% with entire absence of professional representation in the negro group; again figures strikingly suggestive, indicating

TABLE 3.
EDUCATIONAL ATTAINMENT.

No education	Up to fifth grade	Between fifth and eighth grade	High school	College
Per cent of total	10.1	31.0	44.0	13.6
Per cent of males	10.1	30.8	43.4	14.1
Per cent of females ...	9.6	33.8	44.8	11.4
Per cent of negroes ..	18.4	43.0	31.3	7.3
				0.0

the practical dearth of higher occupational types in the crime population and agreeing substantially in this regard with Glueck's findings. Of our group, further, it is roughly estimated that about 60% had been unable to maintain a continuously satisfactory or normally self-supporting level.

As regards education, the situation obtaining may be readily determined from Table 3.

These figures are extremely suggestive, thus, as compared to the adult illiteracy figures in Detroit 4.6%, we have our finding in this regard, in the offender group, of at least 10% and more accurately perhaps about 20% as a great many in the fifth grade-and-under group were undoubtedly considered illiterate for census purposes. The majority of the total appear to have had less than an eighth grade education and, in the negro group, the majority had less than five grades, with illiteracy approximately 35%. The females show a somewhat lower percentage of high school and college types

than do the males. Compared to the general population, these figures show a striking contrast when it is recalled that according to Goddard's⁸ figures only 67% do not complete the eighth grade as compared to 85.1% in our group and for the negroes 92.7%; the local crime group therefore appearing a definitely under-educated one, as might be expected, and bearing out previous findings by Glueck and the workers at the Boston Municipal Court.

In summary then on the socio-medical side, the offender group appears very definitely handicapped in all fields, as indicated by other workers, but definitely displayed here on the basis of a much larger group total than any previously reported and in itself sufficiently large to warrant entirely valid induction—that is, this group represents an element not specifically handicapped but severally or entirely handicapped and in the various social fields, as it

TABLE 4.
CHARGE TYPES.

	Acquisition.	Pugnacity.	Sex.	Negligence.
Per cent of total.....	32.6	23.8	13.6	30.0
Per cent of males	33.3	23.0	13.4	30.3
Per cent of females	26.0	26.7	14.2	33.1
Per cent of negroes	36.8	31.6	10.6	21.0

were, mired in the slough of individuo-social defect, deprivation and ill-adjustment, rendering it most difficult to conceive how any other reaction could have been expected in the specifically legal field.

As to charges made, in this analysis we have utilized Glueck's schema, classifying offenses on the basis of those dependent upon acquisitiveness, pugnacity and sex, including in addition a fourth group of our own, the negligence group, comprising those offenses, mainly of minor type, not accommodated specifically by Glueck's triad, and as a matter of fact, not indicated in his material, it being of a distinctly different type, that is, comprised of definitely sentenced criminals as compared to ours made up entirely of arraigned offenders, many of but lesser degree. According to this classification, the charges group themselves as in Table 4. These figures on the whole are in essential agreement with Glueck's and seem to follow in parallel for the specific groups, save that the negro unit

appears to predominate in crimes based on acquisitiveness and pugnacity.

As regards dispositions made upon these cases the following percentages were determined (Table 5).

In this table the percentage of probations stands out gratifyingly high, 33.7% representing, in fact, the majority disposition, although on the other hand, as a close second, we have the sentenced group, 31.1%, yet in comparison to the total, not unreasonably high, if one bears in mind the fact that these offenders, although possibly unfortunate, nevertheless have become involved in legal toils and must be expected in a general way, in the absence of very specific indication to the contrary, to be dealt with in accordance to precedented legal procedure. The percentage of dismissals and other

TABLE 5.

DISPOSITIONS.

	Per cent.
Probation	33.7
Sentenced	31.1
Disposition not determined	15.8
Suspended sentence	8.8
Mental hospital	3.7
Fined	3.5
Case dismissed	3.4

unsupervisional dispositions is very low totalling only 15.7%, indicating in this, a most promising tendency, that is, conscientious effort towards the thorough study of the court material by the court with earnest attempt at optimal socio-legal disposition. It might be mentioned, however, that hospital disposition is rather low, 3.7%, indicating, if any improvement may be suggested as to dispositional policy, that this schedule might be given more attention, particularly since, as will be seen from the results of our psychiatric analysis, over 14% of those examined were definitely insane and, of the insane group, a distinctly high percentage found to be recidivistic.

As to accord between clinical recommendation and actual court disposition, this occurred in the ratio of 1.8 to 1, that is, roughly, for every one recommendation rejected, two are accepted and, further, this ratio appears in the later cases of the clinic, to represent a much higher figure than this, and one even greater when

compared to the earlier cases of the clinic, while the latter was still in its preliminary or orientational phase, a finding most gratifying, indicating, locally at least, a closer and closer approximation and unity of interest and policy between the purely legal and medico-social view-points.

From the standpoint of psychiatric status—first, in the matter of phrenic or intelligence level, the following figures were determined (Table 6).

Of interest in this table is the magnitude of the combined inferior-feeble-minded group, 52.2% and almost 50% more in negroes, and much higher for the females than the males, checking up well with the educational findings as previously indicated, *q. v.* Direct comparison to the general population is difficult as sci-

TABLE 6.

INTELLIGENCE LEVEL.

	Superior (15+ years (11.6 to 15 years mental age). mental age).	Average (11.6 to 15 years mental age).	Inferior (8 to 11.6 years mental age).	Feeble-minded (under 8 years mental age).
Per cent of total	8.3	39.5	33.4	18.8
Per cent of males	8.7	42.2	32.3	16.8
Per cent of females	4.0	33.8	34.1	28.1
Per cent of negroes	0.8	24.3	34.0	40.9

tifically accurate estimation of the intellectual inferiority ratio to the general population group is practically impossible but, nevertheless, fairly valid estimations have been made indicating the per cent of feeble-mindedness to vary from only 0.2% to 2%, furnishing a striking contrast with the findings in our group, and on the basis of the army tests,⁸ this contrast is further borne out, only 25% in this group falling below 12 years of age, as compared to our figure 52.2%; a distinct stigma, then, as regards the court group. The incidence-weighting for the whites appears to fall on the average group and for the negroes on the feeble-minded group, factors both obviously of very great importance, while further, the per cent of superiors in our group is definitely smaller than that determined for the general population,⁸ thus 8.3% as compared to 13.5% for the latter.

In the matter of actual psychiatric status, a total deviation of 77% was determined, with 14.8% of the psychiatric deviation group

actually psychotic or insane, satisfactorily in agreement as to the latter, but for the former, distinctly above Glueck's figures, 60% and the Boston figures, 45.6%. The actual per cents determined are as in Table 7.

Of especial interest is the high rate of psychopathic personality, 36.8%, and mental deficiency, 52.2% (Table 5), with 18.8% actually feeble-minded, the latter agreeing fairly well with Glueck's figures. A great many of these latter cases, it should be noted, were found to show psychiatric deviation in addition and, for this reason, were considered under both groups. Of interest, too, is the fact that

TABLE 7.
PSYCHIATRIC STATUS.

Psychiatric condition.	Dementia praecox.	Manic depressive psychosis.	Paranoid state undifferentiated.	Alcoholic psychosis.	Alcoholic deterioration.	Central nervous system diseases.	Senile or cerebral deterioration psychosis.	Epileptic psychosis.	Constitutional psychopathic inferiority.	Psychoneurosis.	Psychosis with drug addiction.	Undiagnosed.
Percent of Total.....	5.4	1.7	.04	1.5	11.3	3.3	1.8	1.1	36.8	2.7	1.6	9.7
Percent of Males.....	5.9	1.7	.02	1.3	12.3	3.1	1.8	1.1	37.7	2.1	1.6	10.5
Percent of Females....	3.5	1.9	.07	2.3	8.9	3.8	1.9	1.1	34.2	25.4	1.5	6.6
Percent of Negroes....	5.5	0.05	.05	0.1	0.8	6.7	0.0	1.0	14.7	3.1	1.6	12.8

* Not including tabes without psychosis.

the alcoholic psychoses occurred mainly in females, that the luetic cases were negroes and the psychoneurotic cases mainly negroes and females, whereas dementia praecox occurred principally in males.

As regards recidivism, the total recidivist per cent was 44.6%, with males 48%, females 36%, and negroes 39.3%, following more or less in parallel with the exception that the male recidivist seems distinctly more numerous than the female and the total recidivist figure higher than that for the negro. Our finding is definitely lower than that determined by Glueck who found the recidivist group to total 68.8% in spite of the fact that his criterion was more rigid than ours, only those who had served previous sentences being considered whereas, in our series, all those were included who had been previously arrested, sentenced or not. The interpre-

tation of this discrepancy is difficult but possibly may be conceived as in some measure dependent upon difference due to local conditions, which must always be taken into account, and also upon the fact that our group much more closely resembled the general population, a great many of our offenders being charged with offenses of a very minor sort whereas Glueck's were distinctly on the prison felon type. Further, possibly, in explanation of this difference is the fact New York State being older in scientific crime-handling may possess greater check-up facility with

TABLE 8.
RECIDIVISM ACCORDING TO MENTAL STATUS.

Condition	Per cent recidivist
Inferior	49.7
Feebleminded	41.3
Dementia praecox	14.1
Manic depressive insanity	40.0
Paranoid state undifferentiated	0.0
Alcoholic psychosis	45.4
Alcoholic deterioration	63.2
Neuraxial syphilis *	61.7
Senile or cerebral arterio-sclerotic psychosis.....	40.7
Epileptic psychosis	62.5
Psychopathic personality	31.3
Psychoneurosis	20.5
Psychosis with drug addiction	56.5
Undiagnosed	27.3

* Not including tabes without psychosis.

reference to the determination of previous sentences, and particularly in this instance, since Glueck's population was distinctly a prison population. With these qualifications in mind, however, our findings appear to agree rather well with Glueck's and the Boston figures. In the psychoses the occurrence of recidivism is very instructive as may be seen from Table 8, emphasizing the greater need for extension in hospital or other more permanently (and supervisory) custodial disposition for psychotic offenders, and code change to permit more adequate segregation of those psychiatrically deviant but not actually insane, particularly the psychopathic personalities and the intellectually inferior.

CONCLUSION.

In summary on the basis of the case analysis of 1988 offenders, of all degree, examined at the Psychopathic Clinic of the Recorder's Court, Detroit, comprised mainly of the lay-referred type but still, on the whole, distinctly a representative unit as compared to the general court offender group, a high rate of psychiatric and phrenic deviation was determined, with high incidence of recidivism, largely substantiating, in a general way, the reports of other workers upon other but smaller groups and showing, further, a very gratifying degree of interest—unity as concerns the legal and socio-medical mechanisms with, however, need for further improvement in certain respects as mentioned. There was shown, in addition, low foreign but heavy male and negro representation in offense and a generally parallel behavior as regards the specific groups, males, females and negroes save for evidence of apparently greater social and intellectual handicap and deviation in the latter two with indication also of earlier age incidence in crime commission. And finally, on the basis of the medico-social criteria analyzed, it appears that crime largely, as concluded by so many other workers, also, is definitely not a specific legal, psychiatric or social entity, static and unorganic, but rather a reaction or manifestation, dynamic and vital, in, of and on the societal mass, representing, so as to speak, merely a pattern shift, and one always highly potential, in the kaleidoscope of broad individuo-social handicap, hardship and mal-adjustment and in corollary, clearly demonstrating that all prophylactic and remedial endeavor must be so conceived and directed.

The authors beg to express their grateful acknowledgment to Mrs. W. W. Harryman and to Dr. and Mrs. M. A. Gore for valuable assistance in the work of tabulation.

BIBLIOGRAPHY.

1. Glueck, B.: A Study of 608 Admissions to Sing Sing Prison, *Mental Hygiene*, 2, 85 (Jan.), 1918.
2. Anderson, V. V.: Cited in *Mental Disease and Delinquency*, *Mental Hygiene*, 3 (April), 1919.
3. Anderson, V. V., and Leonard, C. M.: A Study of the Physical Condition of One Thousand Delinquents Seen in Court, *Boston Med. and Surg. Jr.*, 178, 803 (June 13), 1918.
4. Goddard, H. H.: *Human Efficiency and Levels of Intelligence*, Princeton University Press, 1920, p. 114.

THE DEMONSTRATION CLINICS CONDUCTED BY
THE DIVISION ON THE PREVENTION OF DELIN-
QUENCY OF THE NATIONAL COMMITTEE FOR
MENTAL HYGIENE.*

THE FIRST YEAR'S EXPERIENCE.

By V. V. ANDERSON, M. D.

This paper is prepared with a view to discussing with you some of the recent developments in connection with psychiatric clinics for children, now being conducted by the Commonwealth Fund of New York and the National Committee for Mental Hygiene. If I can disabuse your mind of certain erroneous conceptions regarding the work and give you a clearer understanding of their nature, aims and purposes, I will have accomplished my object.

It is perfectly useless to recount here the changes that are taking place in all of our minds in respect to the relation of psychiatry to such problems as delinquency, dependency, education, and the like. The early phases of interest that centered around the recognition of the insane and feeble-minded, and the mere classification of the mentally handicapped among delinquents and dependents, as well as problem children in the public schools, has given way to a broader conception of the rôle played by psychiatry in these public welfare questions.

We have come to realize that psychiatry has an interest in delinquency as such, in dependency and other social problems without any reference to whether disease or defect is an explanation; is not concerned merely with the classification of individual delinquents, or dependents, or handicapped school children—with pigeon-holing them and giving them Latin designations, and then leaving them to their fates. This gets very little distance in adjusting the child and solving the problem he presents. Treatment and ultimately prevention have ever been the aims of scientific medicine. These now seem to be the dominant aim in the field of

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psychiatry. More and more are our minds becoming centered on the early rather than terminal phases of our work. More and more are we seeking to recognize and adjust childhood difficulties before delinquency, school failure or mental disorders have developed.

Already a fund of information is at hand that justifies us in believing that the causes of failure in individuals can often be ascertained by the application of scientific methods of inquiry, and that through competent psychiatric, psychological and social diagnoses, factors that tend to produce delinquent careers can be discovered early and sound and constructive methods of treatment and prevention applied.

But nowhere have we sought to apply on a large scale to the treatment of conduct disorders or the prevention of delinquency in children those same scientific methods that have been so successful in dealing with other human problems.

In order that the benefit to be derived from the application of these newer methods of approach to the problem of delinquency may be made available to public schools, social agencies and juvenile courts in the United States, the Commonwealth Fund of New York has undertaken a five-year program. This program provides for a joint campaign on the part of four national organizations, each with a specific task. The agencies are the New York School of Social Work, the National Committee for Mental Hygiene, the Public Education Association and the Joint Committee on Methods of Preventing Delinquency.

To quote from Mr. Barry C. Smith, the author of this program, who is general director of the Commonwealth Fund:

Only very recently has there come to be some conception of that early study of the individual who is out of adjustment, scientific diagnosis of his social difficulty may make possible a considerable degree of prevention; that carefully differentiated treatment—physical, mental, and social—based on such a diagnosis, may produce results quite as salutary as may be found in the physician's practice, may even direct many a young offender on the pathway toward good citizenship instead of toward the life of the "repeater." To the Commonwealth Fund it has appeared that for the child who is tending toward delinquency, who fails to "get along" in his school, home, or neighborhood environment, who is troublesome or "different" or "mal-adjusted"—for him the greatest single need is that he be accurately and adequately understood; that his problems, difficulties, and motives be appreciated; in short, that the decision as to what is the best thing to do for

him be based on a thoroughgoing knowledge. Therefore, the Fund has chosen to concentrate its efforts in the following directions:

1. To develop the psychiatric study of difficult children, pre-delinquent and delinquent children, in the schools and the juvenile courts, and to develop sound methods of treatment based on such study.
2. To develop the work of the visiting teacher whereby the invaluable early contacts which our school systems make possible with every child may be utilized for the understanding and development of the child.
3. To provide courses of training along sound lines for those qualified and desiring to work in this field.
4. To extend by various education efforts the knowledge and use of these methods.

That phase of the Commonwealth Fund program known as Section II provides for the creation of a new division within the National Committee for Mental Hygiene, that is charged with the responsibility of demonstrating, through the medium of three clinics, the value of psychiatric service in the study and treatment of conduct disorders in children. Two of these clinics are traveling clinics and move from city to city giving demonstrations.

These clinics are staffed by psychiatrists, psychologists, psychiatric social workers, clinic managers, statisticians and stenographers, and will remain approximately 12 months in each city for a demonstration of the methods and technique employed in studying and adjusting difficult, delinquent and pre-delinquent children. Such clinics will concern themselves with stimulating social agencies, courts, schools, and institutions to carry out the most modern and effective means of treatment.

Naturally, the selection of cities for demonstrations will depend largely upon the interest manifested in establishing permanent clinics. The selection will also be largely determined by the degree of development already attained in the matter of understanding modern methods of child-welfare work. A successful demonstration naturally will depend upon existing facilities, such as a well-equipped probation department, good medical clinics and hospitals, well-organized agencies for dealing with childhood problems, progressive school systems, organizations of Boy and Girl Scouts, Big Brothers, and such other resources as would make possible an effective campaign in the prevention of delinquency. The degree of development and the use that can be made of such agencies will measure the amount of treatment that can be accomplished.

Up-to-date demonstrations have been given in St. Louis, Mo.; Dallas, Tex.; as well as Norfolk, Va. Permanent clinics have followed in St. Louis and Dallas.

It will probably be better, inasmuch as there is considerable confusion over the nature and purpose of these child guidance clinics, their organization and operation, and the results of our two years' experience in determining the policies, to devote the rest of our time to answering certain routine questions that are invariably asked of us.

What is a child guidance clinic?

It is an organization that seeks to bring to the study, training and treatment of problem children whatever medicine, psychiatry, psychology, education and social case work can offer. These contributions from specialists in different fields are combined in a well-rounded, coordinated unit, known as a child guidance clinic, that seeks to deal—not only with the child—but with situations in his environment that have contributed to make him what he is. In a child guidance clinic, no part of the study, physical, psychiatric, psychological, educational and social, is separate and distinct unto itself. Each part goes to make up a total and complete picture of the individual child and his adjustments to life. They each contribute to a properly rounded program of rehabilitation and treatment.

What is the personnel of such a clinic?

The staff is composed of psychiatrists, psychologists, psychiatrically trained social workers and clerical assistants. The director of such a clinic is a physician who has specialized in psychiatry with particular emphasis on childhood problems.

What is the cost of such an enterprise?

A minimum annual budget of \$25,000 is required to finance an adequate child guidance clinic. In smaller cities, from 15 to 20 thousand dollars would inaugurate and maintain such an undertaking.

How should such a clinic be financed?

Inasmuch as the social agencies of a city, the public schools, the juvenile court, as well as the entire community would profit from its services, such a clinic should be financed out of the budget of the Board of Education, Community Chest, Juvenile Court and Public Welfare Department of the city. The joining of all of these groups in a common undertaking usually makes for greater success. However, it is desirable, wherever possible, to secure private support, as this removes the enterprise—particularly during the early years of its development—from any political entanglements and general administrative difficulties.

There are serious objections in placing such a clinic in any one department of the city's activities, inasmuch as it often limits not only the resources

of the clinic in undertaking a far-reaching campaign for childhood problems, but actually restricts its services to a certain group of children.

Above all things, should the organization of the clinic be such as to invite parents of all classes to voluntarily bring their children for study and guidance. And, inasmuch as the treatment end of the work is the reason for the existence of the clinic, it should be unhampered by entanglements that would prevent it from using any valuable agency in the city in its follow-up and treatment work.

Where should it be located?

It is important that the clinic be centrally located, having definitely in mind accessibility and service. This means within easy distance of public schools and social agencies. The item of transportation is to be thought of when it is borne in mind that social workers, school teachers, and above all—parents—are daily in consultation with the clinic.

Then there is another matter that must be considered in connection with the study, and particularly the medical treatment of clinic cases. That is the accessibility to laboratory and hospital facilities for specialized laboratory examinations—such as X-ray, blood, etc.

In the long run, the most vital point to be considered as to location is placing the clinic within easy reach of school teachers, parents, social workers and those daily dealing with the child.

What type of children should receive the services of the child guidance clinic?

It is important that such a clinic be limited to no particular types of children. It should be a childhood enterprise—open for the study and advice in the case of all problem children—whatever the problem may be—whether it be that of a child with superior abilities, whose parents wish guidance in maintaining the mental health of the child and mapping out a program for his best development; or a pre-school child who has begun to develop habits that later become injurious to his mental health; or a school child that manifests outspoken conduct disorders or educational maladjustments; or the little fellow who has developed a mental conflict that later on may result in a mental breakdown; or the child whose personality make-up is such as to insure difficulties later in life; or the ward of a child-placing agency that is to be placed in a foster home; or an outspoken case of delinquency from the juvenile court. Whatever the problem may be, if it relates to the better adjustment of the child to life situations, then a child guidance clinic might very well be of service to those responsible for the child's welfare. This thing is certain—that such a clinic is not concerned purely with detecting feeble-mindedness and psychopathic conditions. It is interested in the child, whatever his problems may be. Certainly those children who can benefit most by its aid have normal intelligence, but show something wrong in their interests, or attitude, or behavior, or personality make-up, or are being constantly subjected to environmental influences that prevent the wholesome and healthy development of character and personality.

What methods are employed by the clinic to achieve its purposes? Each child receives a careful physical and mental examination, together with a thorough study of his environment. There are four main divisions of work, in connection with the study of a given case. (a) social, (b) the physical, (c) psychological and educational and (d) the psychiatric. It requires from three to five days to make the initial study of a given case before a report can be made to the referring agency. Sometimes a much longer period is required, owing to the difficulty in getting an adequate social study completed. After all the information is in, a staff meeting is held, at which all of the important facts bearing on the problem in hand are brought up for consideration and analysis, and a report of the findings made to the referring agency. This report not only contains a summary of all the facts discovered by the clinic in its four departments, but a plan of treatment is carefully worked out, with very definite recommendations as to what should be done, along the following lines:

- (a) Medical.
- (b) Psychological and psychiatric.
- (c) Educational.
- (d) Social.

What is a social examination?

That phase of the clinic study which is designated a social investigation—is a record as complete as can be gotten of the child's environment, the stock from which he springs, and the child's own developmental career. It contains an account of the personalities that make up the little world in which the child lives. It describes not only the physical make-up of the home, but what is of more importance—its atmosphere—intellectual, moral, religious and social. It is intended to show the influences, hereditary, environmental, health, educational, etc., that have operated to make the individual child what he is. It gives an account as complete as can be gotten of the life career of the individual—his entire developmental history—from birth up to date. The social investigation made by a psychiatric social worker differs from that usually made by other social case workers, in the special emphasis it lays upon facts related to the mental and physical development of the child himself; of his family; or his immediate ancestry and of the personality and mental attitude of the individuals who make up the world that surrounds the child. It seeks to record the inter-play of these personalities, and to find there as well as in the concrete evidences of care and neglect that the home affords, the causes of unhappiness and maladjustment.

Why is the physical examination made?

That the physical health of the individual greatly influences his life adjustments or his behavior—there is now no one to question. That the great majority of all problem children present in addition to a great many other vital factors needing attention, mild or serious physical conditions, we already know. The wisdom of determining the presence or absence of heart

disease, tuberculosis, kidney conditions, diseases of the ductless glands, syphilis, and many other serious physical disorders needs no discussion.

What is a psychological examination?

It is the application of standardized mental tests to the determination of the intellectual abilities of a given child. The psychological examination is given in order to determine the mental development of a child, measure his educational progress, and discover special abilities and disabilities. The mental development, and the various abilities and disabilities of an individual child are measured in relationship to the same abilities of other children of the same age. This has been made possible from the results obtained by psychologists in the examination of large numbers of children of various ages, races and nationalities. And it has thus been possible to ascertain with a high degree of reliability, the mental endowments, the educational progress, and the abilities, as well as the disabilities, of an individual child.

What is a psychiatric examination?

Unlike the psychologist who seeks to measure mental capacities, the psychiatrist has mainly in view a study of the way in which the mind works. He seeks to get a picture of the child as a living and adjusting personality, of the child as a whole, and not any special phase of his make-up. It is the duty of the psychiatrist to analyze the entire case record, putting together all the facts in the case in their bearing upon the personality make-up of the child and the forces from within that have seemed to make him behave as he does. In addition to the picture of the child's make-up that the psychiatrist gets from analyzing the social investigation, the physical examination, the psychological and educational studies, he adds that most valuable contribution secured from the child himself—an account of his inner mental life, his own view of his personal experiences, his own attitude towards himself, his associates, his parents, brothers and sisters, other relatives, teachers, etc., his own account of his behavior and motives for such. The psychiatrist seeks to get a free, full and frank account of the child's inner thoughts, and his own personal way of dealing with his instinctive life. In making such a study the psychiatrist discovers unhealthy attitudes, morbid trends, mental conflicts, pathological personalities, and even serious nervous and mental disorders and defects. Above all, however, the psychiatrist in this way understands how the child's mind works and comprehends the processes and mechanisms that the child uses in adjusting himself to life situations.

How does the clinic make use of this information for the benefit of the child and those responsible for his guidance?

After the initial study of a given case has been completed, a staff meeting including every member of the clinic's personnel, as well as the referring social worker, or visiting teacher, or probation officer, is held. At this time every item in the entire study is carefully gone over. A summary report of all findings is made which includes an evaluation of all of the various causative factors from within and without the child that have contributed to the child's behavior and difficulties in adjusting himself. Finally,

the very object of the entire study, and the sole reason for the examination—which is the program of treatment recommended, is now carefully taken up. This is outlined under four specific headings:

- (a) Medical.
- (b) Psychiatric and psychological.
- (c) Educational.
- (d) Social.

An effort is made to be specific, concrete, and practical in these recommendations.

The most important phase of the entire clinic's program—the follow-up and treatment end of the work—is now reached. Through the social service department of the clinic, every effort is made to assist, stimulate, encourage and inspire the referring workers, or persons concerned with the child, to do the best possible psychiatric case work in each given case, and to keep in the very closest touch with the clinic's staff for weekly and monthly conferences on what is accomplished in treatment. New and improved programs are worked out from month to month as the case progresses. It is absolutely fundamental that a child guidance clinic have an adequate psychiatric social service staff of its own, if it is to function satisfactorily with schools, and various agencies in connection with the follow-up end of the work. This in no way relieves the social agencies, probation officers, visiting teachers and others from their full responsibilities in connection with a given case, but it makes possible a clinic that is a real guidance enterprise rather than a dispensary service.

Is the cooperation of social agencies, school teachers, probation officers, medical men, and hospitals, important in treatment?

If this one thing is borne in mind, that a child guidance clinic is a community-wide organization, created for the adjustment of problem children, who by the thousands become our social problems in the future, and is not a psychiatric dispensary to classify mental cases—it can then be seen how such an enterprise enters into every fibre of the social facilities of a city. If its aim is the adjustment of problem children, then it must use every tool available in a community to carry out such adjustments. This means specialized educational measures, the very best social case work, child placing, and family agencies, most approved probation methods, modern recreational facilities, Boy Scouts, and other like resources. The whole question of success in the adjustment of a given case, through the agency of such a clinic, is going to be measured by two things—the extent of development of these community resources, and the ability of the clinic to utilize them. Every worth-while resource in the city that can be used in child welfare work should be tied up in some intimate way with such a clinic.

How is a community to be made acquainted with the significance of such a movement and the existence of such an enterprise?

A child guidance advisory committee should be appointed in each city. This committee should be composed of influential persons representing the

public schools, the various social agencies, the medical profession, the Department of Public Welfare of the City, clubs and various welfare organizations, Chamber of Commerce, leading newspapers, etc. Such a committee should make a study of the need of a child guidance clinic and should develop a program in which all of the social facilities of the city should play a vital part; the child guidance clinic being more or less an advisory and consulting center in the cases of individual problem children. This committee should carry on a constant stream of education before various clubs and organizations. When the child guidance clinic has been established, this committee should become the advisory and administrative group in charge of the enterprise. It should, through its continuing study of the needs of the clinic, and the community, seek to develop the work along the soundest and safest lines. The Child Guidance Clinic staff, through its advisory committee, which also represents the schools, social agencies and other bodies in the city, will be able to work effectively through these resources in its programs for problem children. This close relationship maintained with other bodies that must be used as adjustment resources, will enable the clinic to act as a training center along mental hygiene lines for school teachers, social case workers and others.

How can a city secure aid in developing a child guidance clinic along the most modern and approved lines?

A special division with the National Committee for Mental Hygiene has been created for the purpose of administering that phase of the Commonwealth Fund's program, which is concerned with psychiatric, or child guidance, clinics. This division, under the direction of Dr. V. V. Anderson, maintains for cities interested in the development of psychiatric and child guidance clinics two types of clinical service:

- (a) "Demonstration Clinics."
- (b) "Consulting Field Service."

The Demonstration Clinic Service maintains two large clinics, staffed by psychiatrists, psychologists, psychiatric social workers and statistical and clerical forces. These clinics remain approximately one year in a city, and then move to another demonstration center, and are only available to the very largest cities where the best social facilities may be utilized in conducting a model demonstration. The object is to plant only a few demonstration centers in the country—hoping to develop in these centers a type of work that will stand out as an object lesson to other cities.

For two reasons the Division is not inclined to establish a demonstration in any city except on definite assurance that a permanent clinic locally financed will follow the demonstration. In the first place, the operation of one of these demonstrations involves considerable expense which is warranted only where the community definitely intends to carry on the work permanently and desires the demonstration as a means of making possible the establishment of a permanent clinic upon a proper basis and with proper methods of work. Secondly, it is desirable that the staff of the demonstration be free to devote their entire attention to the actual work of the clinic

and not be distracted by the necessity of assisting local committees in securing financial support for a permanent undertaking. Except under unusual circumstances, therefore, the Division places the demonstration only in a city which is definitely prepared to continue the work permanently and under no circumstances will the demonstration be carried on unless the community is prepared to provide a minimum annual budget of \$25,000. for the permanent clinic when established.

Properly trained personnel must be secured and close relationship to the various agencies mentioned above, maintained. It is expected that the Director of the permanent clinic shall have some relationship to the teaching faculty of the university in cities chosen.

These demonstration clinics not only demonstrate the methods employed in the adjustment of problem children, showing just how the job is done, but also concern themselves with the organization of a community's facilities to work properly in a unified scheme with the permanent clinic. The demonstration staff, in cooperation with the central office of the division, helps in the choice and training of the personnel of the permanent clinic.

The Consulting Field Service is available to cities, large and small, that, though not being able to receive the larger demonstrations, still wish to go ahead in the development of their own clinics and wish aid and advice in the organization and operation of such. This consulting field staff will remain from three to four months in any city. It will assist in the assembling of personnel and getting the clinic work under way, in perfecting its organization and its relationship to the community, in laying down sound clinical and social case methods, and carefully nurturing along the most approved lines the undertaking until it has achieved a safe development. No city will receive such consulting service that is not already prepared to finance some sort of clinical work and seeks aid in the establishment of such. A minimum budget of \$15,000 is deemed necessary for child guidance clinics in smaller cities.

NOTE.—Dr. Anderson's paper was supplemented with the histories of a number of illustrative cases which it has been found impossible to publish.

DISCUSSION.

DR. A. M. BARRETT.—Dr. Raphael has presented to us in a very concrete way an insight into some factors influencing abnormal behavior. These point out directions for a constructive treatment of some problems of great importance to our social organizations. It shows what can be done by the psychiatrist taking an active part in the legal machinery dealing with crime and behavior problems.

Psychiatry is no longer limited in its scope of interests to the study and treatment of the insane committed to institutions. The technique and viewpoint acquired by the psychiatrist in his experiences with the problems of patients in mental hospitals should be made more widely available than has been done in the past.

Dr. Anderson has shown in his interesting discussion how this can be successfully put into practice. I am sure we all feel that both of these papers will stimulate us in the development of greater activity along these lines.

DR. LOWREY.—I am really too close to the meshes of the problem to have any philosophical deductions as to its place and importance from the standpoint of future development. The facts of the case are when a clinic of this kind goes into a community where psychiatric work is more or less organized it finds an immediate response on the part of the community itself. It is a very remarkable thing to note the readiness with which the social agencies and particularly the families come to the clinics for assistance in dealing with their problem children.

In Dallas we have had one-quarter of all our cases from the juvenile court, one-quarter from families, one-quarter from social agencies; one-quarter are distributed between physicians and schools. Fifteen per cent of the cases come from the schools and 10 per cent from physicians.

We have found that so far as the general public is concerned, the people who have to live every day with these problem children make the most of the opportunity. It is true that we cannot always carry out immediately the sort of things we would like to have carried out, but we do have an unusual degree of cooperation in trying to deal with the children themselves. It is almost the only time they have opportunity to present their side of the behavior situation. The situations are of surprising variety ranging all the way from the simplest of handicaps to handicaps of a nature that we have no way of reaching at all. It is surprising to find occasionally, an eight- or nine-year-old youngster, fully developed, that it is very difficult to reach by the methods we have at the present time. From the standpoint of the clinic situation, we find ourselves very much on edge all the time. Every case presents a new sort of problem which is apt to be entirely different from the sort of problem we have been in the habit of encountering in institutional or adult outpatient work.

DR. ABBOT.—I am very much interested in these papers of Dr. Raphael and Dr. Anderson. It has been my good fortune to spend a few weeks at Dr. Healey's Clinic at the Judge Baker Foundation. I have been per-

sonally impressed by the desirability, and even the need, of a place where some of these more difficult problem children can stay for a while under continuous expert observation and study. It seems to me that to the clinics like Judge Baker Foundation and like those that Dr. Anderson has just described, there needs to be added a day or even boarding school where the child can be continuously under the observation of teachers, psychiatrists, psychologists and others who can throw any light on the mental problems of the child. Clinics like the Judge Baker Foundation and those of which Dr. Anderson has spoken don't have that opportunity. The child is brought to the clinic two, or three, or more times for repeated observations, but I think there is an advantage in having the child under 24 hours' observation for days, and sometimes even weeks at a stretch, in order that we may observe and so understand them better. That, perhaps, may be the next step in the development of this work. I hope it may be.

THE PRESIDENT.—If there is no further discussion, the Chair will call upon Drs. Raphael and Anderson to close.

DR. RAPHAEL.—In view of the lateness of the hour and the ample discussion already presented, I feel there is nothing further I can add of profit and beg to close the discussion herewith.

DR. ANDERSON (closing).—All I have to say is that I was interested in Dr. Abbot's remarks. We do have just such opportunities for observation. Our clinics wherever possible are at medical schools and hospitals. For instance, the clinic is located in Dallas at the medical school and near the hospital, and we observe some of our cases in the hospital. The selection for observation depends upon the individual case. The average child's difficulties are as often to be found in his home and in his environment as in his own constitutional makeup. Only the exceptional child receives or needs such observation. The period of observation runs anywhere from two days to two weeks; average is about five days.

AFFECTIVE DISORDERS FOLLOWING ACUTE EPIDEMIC ENCEPHALITIS IN CHILDREN.*†

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Attention is especially called in this paper to the occurrence of affective disorders in children as one of the neuropsychiatric sequelæ of epidemic encephalitis. In adults, the psychoses following this disease have been repeatedly described (Hohman,¹ Kirby and Davis,² Ebaugh³ and others). In the report made by the Association for Research in Mental and Nervous Diseases⁴ in 1921, eight groups were described which represented four main reaction types, namely, (1) depression, (2) psychoneurotic-like, (3) delirious and (4) organic. Reference was made to states in which there was euphoria, great push of talk with mood changes and alteration in the stream of talk, emotional instability and depressive states.

These conditions occurring in children have not been so frequently described in whom the symptoms in the main are the same as those seen in adults, but with some modifications which are to be attributed to the immaturity of the child's brain. Manic types of reaction as well as depressive states with suicidal tendencies stand out as frequent psychic sequelæ of acute epidemic encephalitis in adults and to a less extent in children (Clay,⁵ Ebaugh, Neal,⁶ Happ,⁷ Francioni,⁸ Hohman,⁹ and Claude¹⁰).

Emphasis in this contribution is made especially to the affective disorders in children, an opportunity to study which was afforded

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† From the Neuropsychiatric Clinic of the Philadelphia General Hospital.

at the neuropsychiatric clinic of the Philadelphia General Hospital, where among 17 cases applying to the clinic in which there were neuropsychiatric manifestations, seven were of this type occurring in children ranging from 8 to 14 years of age. Some of these cases were in the acute stages, while several presented the symptoms as late sequelae of the disease which occurred six months to some years prior to the appearance of the psychic manifestations. In this group, suicidal attempts were frequent and necessitated safe-guarding measures. In two cases admission to the neuropsychiatric wards of the hospital was deemed necessary to insure the safety of the patient. Suicidal attempts were frequently nocturnal and appeared to be related to states of agitated insomnia so common in these cases. Hohman points out that these affective disorders are not clear-cut and decisive. They are, for the most part, related to delirious states as a rule and inhibition with ideas of self-condemnation characteristic of the manic-depressive psychoses is absent.

In this connection, it is of importance to recognize that mental complications of epidemic encephalitis cause behavior disorders of medico-legal importance, consisting of delinquent acts and suicidal attempts before the exact nature of the disorder has been recognized, attention to which has already been called by Briand.¹¹

These conditions have been already described as occurring in connection with hypokinetic and hyperkinetic types by Staehelin¹² recently, but in the cases to be described it is interesting to note that the symptoms under discussion occurred in the absence of neurological sequelæ. The seven cases to be described later presented several features of interest of which the suicidal tendency was not the least. These are of interest from several standpoints.

First, it was observed that the attempts at suicide were not motivated. One patient (Case 3) attempted to choke himself while in the ward, and on questioning him as to his motive, admitted that he had no desire to kill himself and was unable to explain his attempt. He had previously expressed suicidal ideas and on one occasion felt like jumping from a fast moving automobile. This state of mind cannot be attributed to a delirious state as the attack of acute epidemic encephalitis occurred three years previously.

2. The depressive state tends to be transient. It is not infrequently associated with a delirious state, as in Cases 2, 6 and 7.

One boy complained of feeling heavy-hearted at night, and another boy attempted to jump from the window while depressed.

3. The absence of the type of depression as is seen in manic-depressive psychoses, in which inhibition of thought, and ideas of self-reproach stand out prominently, is conspicuous in the affective disorders following acute epidemic encephalitis in children as well as in adults. Only in one case (Case 5) was there any evidence of self-condemnation. In this case behavior disorders present were observed before the occurrence of the acute epidemic encephalitis.

4. The affective disorders in children following acute epidemic encephalitis are not confined to depressive states. Manic reactions occur consisting of increased psychomotor activity. Bonhoffer¹⁸ has already called attention to the occurrence of disordered behavior in children after acute epidemic encephalitis, which suggested the unsteadiness of mania and Staehlin also described in the hyperkinetic type states resembling manic conditions. In Case 3 the patient was very active physically and mentally and was incessantly moving about and talking. He was admitted to the neuropsychiatric wards where he attempted suicide. He improved markedly, but when discharged was still elated and was sent to a farm to complete his convalescence.

5. The affective disorder may be related to previous personality make-up. This has been observed in children who have shown difficulties in adjustments prior to the attack of encephalitis. The character of the make-up determines whether the affective disorder will present disturbances in the nature of depression, anxiety states, elation, paranoid states or what not. Affective disorders of this type occur more infrequently in children than in adults. These trends were observed in 31 adult cases of psychoses admitted to the neuropsychiatric ward in which this was studied. Many of those showed depressive reactions, manic states or psychoneuroses as the previous make-up happened to be.

CASE 1.—S. J., female, age 8 years. Admitted to clinic 5-24-22.

Summary.—History of encephalitis epidemic March, 1922, followed by manic-like type of reaction. Patient presented marked pressure of talk and activity associated with sexual precocity. Neurological sequelæ present.

History.—The patient was referred to the clinic on account of marked irritability. At the onset, March 15, 1922, there was lethargy of two weeks' duration. In April she complained of intense dizziness, headache and

earache, talked incessantly, cried most of the time and refused to remain in bed. Since May 13 she exhibited symptoms of acute delirium characterized by visual hallucinations and extreme apprehension. When seen in the clinic May 24 she was elated, talked continually and could not remain quiet a moment. She also showed some evidence of sexual precocity. There were present horizontal and vertical nystagmus, weakness of the right external rectus muscle, bilateral ptosis and left facial weakness. The spinal fluid findings were negative.

Discussion.—The case is of interest owing to the pressure of talk and physical activity with general exuberance of spirits which simulated a manic condition. It is also noteworthy that the condition was associated with sexual precocity, so common in hypomanic types of reaction.

CASE 2.—C. K., male, age 14 years, admitted to clinic 8-8-22; admitted to psychopathic ward 8-8-22; discharged 8-20-22.

Summary.—Onset February, 1922. Typical history of encephalitis epidemica. Later patient complained of being heavy-hearted at night. Stated he was no good and threatened to kill himself with a gun. Admission to psychopathic ward. Gradual improvement. Continued to show an affective tendency towards depression. I. Q. — 97.

History.—In February, 1922, he began to complain of headaches, pains in arms and shoulders, sudden twitching of facial muscles, diplopia of a week's duration, masseter tenderness, inability to sleep at night and extreme restlessness. He whistled and made strange noises, showed visual hallucinations occasionally, complained of feeling heavy-hearted at night, and threatened to kill himself. The sleep curve was reversed, the patient sleeping most of the day and lying awake throughout the night. He was admitted to the psychopathic ward 8-8-22. His restlessness improved after spinal drainage. Since his discharge from the ward on August 20 the patient continued to sleep better, but still had periods of insomnia and at times was depressed, though he made no attempts at suicide. His headache persisted and he was unable to work regularly. I. Q. — 97.

Discussion.—The case is of interest, showing an affect reaction associated with an agitated insomnia so common in these cases. The depression led to suicidal attempts necessitating his admission to the psychopathic ward. With periods of insomnia there was a return of the affective disorder of a depressive type.

CASE 3.—N. D., male, age 10 years, admitted to clinic 3-23-22; admitted to psychopathic ward 10-26-22; discharged 12-12-22.

Summary.—In April, 1920, he became delirious, showed agitated insomnia and symptoms of an hysterical type. Periods of overactivity with incorrigibility necessitated his removal from school and his admission to the psychopathic ward. The patient had occasional periods of depression, most

likely impulsive, resulting in an almost successful attempt to strangulate himself during period of observation in the hospital.

History.—The patient complained of inability to sleep, visual hallucinations, diplopia, twitching of the facial muscles and cramps in the hands. He did not fall asleep until five or six o'clock in the morning, sleeping until three o'clock in the afternoon. He was very restless and had periods of singing, whistling, and yelling. All measures to overcome his insomnia were of no avail. These symptoms lasted for two months. During the past two years there developed seizures of an hysterical type. Three or four times a day he fell and lost consciousness, associated with tumultuous respiration. He was on the move continually, frequently talking back to his teachers and leaving the schoolroom at odd hours. There was a total change in character and disposition. He frequently disgraced his family by begging on the street, exhibiting incorrigibility on the street as well as in school. He was admitted to the neuropsychiatric ward of the Philadelphia General Hospital. While in the ward his hysterical tendencies rapidly disappeared. He was, however, impulsive, restless and did not react to discipline. At times he stated that life was not worth living. On one occasion he made a suicidal attempt by tying a towel about his neck and was found later in a very cyanosed condition by the nurse and fortunately responded to stimulation. His father stated that he had frequently threatened to jump out of an automobile when it was going at full speed, and had what he termed "fits of depression."

Discussion.—The point of especial interest in the case is that the affect change was for the most part associated with a state of tension. On questioning the patient he admitted he had no real desire to take his life and showed no self-reproach so common in depressive reactions. He was very impulsive, difficult to manage and there was some possibility that his hysterical tendencies had contributed to his suicidal attempt. These attacks are interesting as showing a defense reaction, as he would puff and pant for breath to avoid unpleasant situations such as going to school, going on errands, and the like. These respiratory irregularities were present at other times during the course of his illness. Physically, he was markedly undernourished. Neurologically, he showed residuals of strabismus. I. Q. — 109.

CASE 4.—V. L., male, age 8 years, admitted to clinic 5-11-22; admitted to nervous ward 5-8-22; discharged 5-27-22.

Summary.—Admitted to clinic, later being sent in for commitment through the municipal court. Encephalitis epidemica in January, 1922, with a typical history of acute delirium, visual disturbances. A history of previous incorrigibility was accentuated during his illness. He frequently walked the streets all hours of the day and night. He stole, and had screaming

spells. He had a tendency towards cruelty, attempting to kill his brothers and sisters with a knife, and marked sexual precocity. He attempted to have relations with his sister at home. When seen by us, the boy presented a manic type of reaction. He was extremely overactive, talkative, restless. His activity was uncontrolled. Complete mental examination was impossible. His behavior abnormalities led to court commitment and hospital admission. I. Q. — 65.

Discussion.—Of special interest is the fact that he showed marked pressure of talk and activity. At times he appeared elated, simulating a very common type of manic reaction. He also showed extreme sexual precocity and a tendency towards outbreaks of cruelty, necessitating his admission to the psychopathic ward following court commitment. At present the boy has improved somewhat but is still overactive, elated and uncontrolled. He was sent to Brown's Farms.

CASE 5.—P. A., male, age 13 years, admitted to clinic 6-29-22; admitted to psychopathic ward 11-2-22; discharged 11-4-22.

Summary.—Encephalitis epidemica in February, 1921. Patient was always incorrigible, and showed marked antagonism towards stepmother. These traits became accentuated following illness. He frequently stated he felt blue and that life was not worth while. He attempted to drown himself in December, 1921. He was later admitted to Reformatory for Boys, Glen Mills. Transient improvement following spinal drainage.

History.—In February, 1921, he became acutely delirious. This was followed by a lethargic period with typical eye symptoms and marked salivation. Later there developed marked insomnia, reversal of the sleep curve and spells of an hysterical type. He frequently stated he felt blue, that life was not worth living and in December, 1921, attempted to drown himself in a lake. He had spells of moaning and crying and was very antagonistic. There was a history of incorrigibility before his illness and marked antagonism especially toward his stepmother, traits of character which were more marked following this illness. He was later committed to a boy's reformatory in May, 1922. While there he continued to sleep during the daytime, did not respond to discipline, and for this reason was referred to the clinic.

The neurological sequelæ of interest consisted of sluggish and unequal pupils, internal strabismus, facial weakness, some fixation of the facial expression and at times a rhythmic tremor of the head.

Discussion.—This case illustrates a depressive reaction which was more marked than in any of the cases described and was associated with a feeling of inadequacy. It is also of interest in that he gave a history of previous behavior disorders developing in an unhappy family situation. From a therapeutic viewpoint it is of interest as showing a tendency toward improvement after spinal

drainage on two occasions. The normal sleep curve was gradually restored.

CASE 6.—H. D., male, age 13 years, admitted to clinic 1-29-23.

Summary.—Encephalitis epidemica in November, 1922, with a period of lethargy and double vision. There was a history of a very poor home environment and of stammering. Encephalitis was followed by depressive tendencies. He frequently made statements such as "I wish I were dead." Complained of feeling "sad-like." He was said to have always been cheerful before this illness. He was forgetful.

History.—The history in this case was that of an acute illness occurring in November, 1922, when he was suddenly taken sick in school, complained of headache, dizziness and diplopia and he became lethargic for several days. Following this illness there had been a slight increase in his stammering. He was forgetful and complained of feeling "sad-like" and frequently stated that "he wished he were dead." He usually made these statements after being scolded or when he was preoccupied with his parents' difficulties and quarreling. He had threatened to jump out of the window on several occasions. Previous to this illness he had always been cheerful. There was a history of night terrors. I. Q.—99.

Discussion.—This case shows definite affective disorder following encephalitis epidemica. Previously this boy was able to adjust himself to a rather difficult home situation. His parents frequently quarreled and finally were separated and the patient had recently been cared for by his mother. He gave definite statements of affective type. He was "sad-like," and admitted that he did not think life was worth while.

CASE 7.—D. B., male, age 8 years, admitted to clinic 3-26-23.

Summary.—Patient had an attack of encephalitis epidemica in August, 1922. He was said to have been overcome while swimming. Periods of headache, dizziness, hallucinations, radiculitis of legs. Lethargic period for one week. There were behavior abnormalities following this illness with an affective disorder of depressive type. He frequently threatened to kill himself and stated that he felt sad and wished he were dead. Had many fears.

History.—In August, 1922, it was said that the patient was overcome by the sun while swimming. He was delirious, had visual hallucinations and complained of headache, dizziness, soreness of the jaws and drowsiness of a week's duration. Since that time there had been a decided change in the patient. Although he had always been nervous, his mother stated that he was worse. While previously his standing in school was good, his work became unsatisfactory and he was unable to read. He was very quick-tempered, had many fears, refused to go upstairs alone in the daytime or to go to bed at night unless someone was with him. He made many statements which indicated an affective disorder. He stated that at times he felt

very sad and wished he were dead and also that his mother were dead. During the week before admission to the clinic he had threatened to kill himself. He stated that he continued to see devils before him at times. The case was admitted to Dr. Rhein's service at the Polyclinic Hospital for observation and treatment.

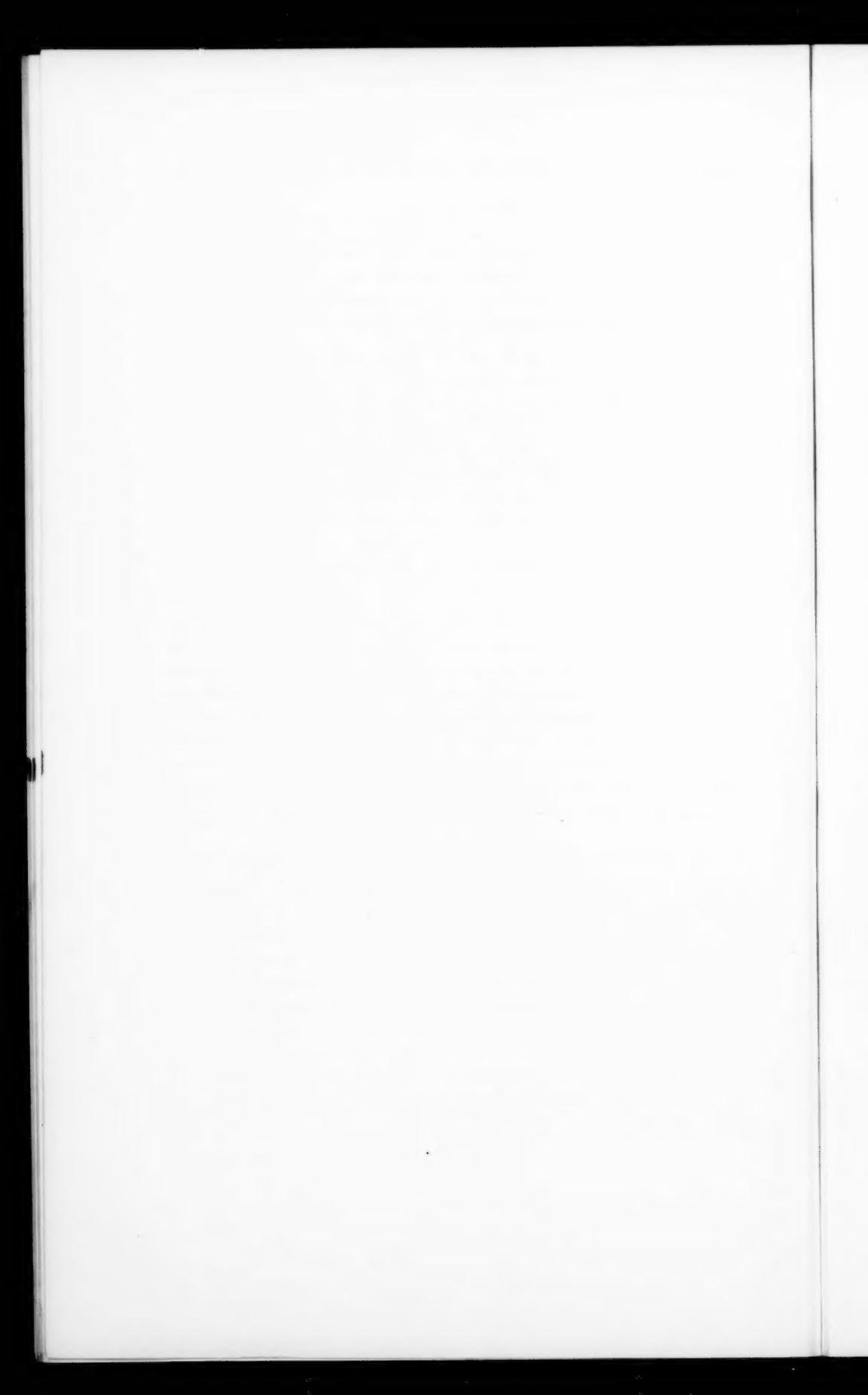
Discussion.—This case is of great interest since the affective disorder is definitely that of depression. Whether this affective disorder is related to previous personality make-up could not be ascertained. His mother states, however, that the boy was always nervous and his nervousness had been accentuated by his encephalitis. He gave definite statements of affective depression. At times he wished he were dead and frequently threatened suicide. The question of this individual representing chronic epidemic encephalitis should be considered, since there is an early evidence of a delirious process in his apprehension and visual hallucinations. His fears at night, however, may be caused by early hallucinatory experiences during the acute period of his illness. The boy was unable to get along in school after the onset of these symptoms which can be interpreted as an attack of encephalitis epidemica. He was admitted to the children's ward of the polyclinic division of the Graduate School of Medicine, University of Pennsylvania. Here a complete rest cure was given, including isolation, rest, forced feeding and passive exercises. At the end of two months he was discharged cured. His depression disappeared entirely, in fact, he became very cheerful and apparently happy. He was able to dismiss his phobias and disclaimed any desire to do away with himself.

The prognosis in melancholic states is regarded as grave, and we are entirely in agreement with this statement, but on the contrary we feel that the rest treatment in these cases thoroughly carried out over a prolonged period will offer most encouraging results.

In conclusion: (1) Affective disorders expressing themselves in states of depression or elation occur as important sequelæ of acute epidemic encephalitis. (2) Suicidal attempts are frequent in this type of neuropsychiatric sequelæ. (3) It is important to safeguard patients suffering from this form of sequelæ. (4) The value of the rest cure in the treatment of the affective disorders occurring after acute epidemic encephalitis is to be greatly emphasized. (5) The prognosis in these cases, while guarded, is favorable in many cases in which a complete rest cure is given.

BIBLIOGRAPHY.

1. Hohman: Arch. Neurol. & Psych., 1921, Vol. 6, p. 295.
2. Kirby & Davis: Arch. Neurol. & Psych., 1921, Vol. 5, p. 491.
3. Ebaugh: Am. Jour. Dis. Children, 1923, Vol. 25, p. 98.
4. "Acute Epidemic Encephalitis": An investigation by the Association for Research in Nervous and Mental Disease, New York, 1921.
5. Clay: Jour. Mich. State Med. Soc., Jan., 1923.
6. Neal: Jour. Am. Med. Assn., Vol. 77, July 1921, p. 121.
7. Happ: Bull. Johns Hopkins Hosp., 1921, Vol. 28, p. 575.
8. Francioni: Policlinico, 1921, Vol. 28, p. 575.
9. Hohman: Bull. Johns Hopkins Hosp., 1922, Vol. 33, p. 120.
10. Claude: Annal. Med. Psychol., 1922, pp. 80 and 246.
11. Briand: Bull. Acad. de Med., 1921, pp. 86 and 286.
12. Staehelin: Zeit. f. d. ges. Neurol. u. Psych., 1922, pp. 77 and 171.
13. Bonhoffer: Klin. Wchnschr. Berlin, 1922, Vol. 1, p. 1426.



THE PRACTITIONER AND THE DIAGNOSIS OF GENERAL PARESIS *

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In preparing a paper for presentation before this Association there were several possibilities that came to my mind. In the end it seemed to me that a topic dealing with certain psychiatric problems as viewed from the standpoint of the general practitioner might not be out of place.

For several years past I have been in a community where the psychiatrists have been in the minority, and having been for some time the only available man in this branch of medicine, many interesting problems have arisen. The most important are those of commitment and the emergency treatment of psychopathic patients; for California is hampered by extremely archaic laws in regard to commitment. But a discussion of these matters is outside the scope of this paper.

Another problem relates to the recognition and diagnosis of many of the fairly common psychoses such as would be encountered in the every-day practice of the internist or surgeon. Therefore it seemed to me that a discussion of the chief symptoms and diagnostic points of a fairly prevalent psychosis, such as general paresis, could well be presented here for the consideration of the practitioner.

Perhaps I have chosen a topic that would seem puerile and not entirely adapted to a meeting of this kind, but I hope that the discussion will bring to light salient points, points that will be of assistance to the practitioner in the future. I also hope that the discussion will produce ways and means of emphasizing to the practitioner the vital necessity of instituting treatment at the earliest possible moment.

While this paper may not be highly scientific, in it I have tried to keep uppermost in my mind the idea that while I was to present

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my topic before an audience of trained psychiatrists that I was at the same time endeavoring to bring forth something of value to the rank and file of general practitioners and considering their needs and their interests.

Paradoxical as it may sound, general paresis may be one of the easiest of the major psychoses to diagnose, or it may be one of the most difficult. Often the difficulty arises from the inclination to regard this psychosis as a rarity or a mystery. The ease of diagnosis depends upon several factors: (1) The stage of the disease; (2) the type and form; (3) the familiarity the practitioner may have with this condition.

It is not my purpose to dwell to any extent upon the pathological anatomy of general paresis, for the internist will not be so much concerned with the finer points in the diagnosis as he will be in the making of the actual diagnosis.

Remembering that paresis has its etiological agent in syphilis and syphilis alone, the internist will derive some help in the knowledge that just as visceral syphilis is a protean disorder and can simulate any known disease, so paresis can simulate any known mental disorder. But this point should not be overlooked; the earliest symptoms of paresis may be entirely somatic and have no reference to the central nervous system. Keeping these two points in mind the practitioner can approach the problems in diagnosis with a better viewpoint than if he had not considered them.

Now proceeding with the various steps in the examination of a suspected paretic the examiner will find, contrary to his expectations, that the history may be decidedly misleading. For when one has had the opportunity of examining a number of paretics, even in the earliest stages before an alteration of character has taken place, it will be noted immediately that many paretics deny syphilis both by name and symptom. A most searching inquiry will not reveal any infection that remotely resembles syphilis.

Even if a suspected paretic admits a specific infection, backed up by the evidence of a genital scar, the history will not, in the majority of instances, bring to light any secondary manifestations. This fact has, at various times, aroused the conjecture as to the possible existence of one or more strains of the *treponema pallida*.

General paresis does occur among the negro race, but not with the frequency that it is found among the white race. This and the

above observation regarding secondary lesions have been used as arguments by those trying to prove the existence of strains of the treponema pallida of varying virulence and selective action. In the negro race the treponema pallida seems to have a special predilection for the great vessels of the heart. Thus we hear far more frequently of aneurism and aortitis in this race than we do of neuro-syphilis.

In many instances the onset of paresis is so insidious that the patient's complaints—and often there will be a multiplicity of them—mask the vital underlying condition. This multiplicity of complaints, complaints referred to every one of the bodily systems, is quite likely to throw the physician off his guard and make him think that he is dealing merely with a neurotic or neurasthenic individual.

Many of the standard text-books on psychiatry contain excellent word-pictures of the standard paretic, but it is the paretic who is not "standardized" that causes the greatest number of faulty diagnoses. Often this is not entirely the fault of the physician, but in some instances he may be to blame for not remembering that any syphilitic disease is tremendously protean in its nature.

Again many text-books have outlined the classical physical findings of paresis as consisting of: Argyll-Robertson pupils, increased deep reflexes, tremor of the hands, tongue and lips, disordered speech and writing and possibly some ataxia of the extremities. All of these may be found in the classical paretic, but their absence does not indicate that the patient is not a paretic. This is especially true of the Argyll-Robertson pupil.

More than one physician has told me very emphatically, "Mr. Blank cannot be a paretic, for his pupils react to light." It has been quite true that the pupils did react to light but it was not true that the patient was not a paretic.

When present, the Argyll-Robertson pupil can be considered as extremely valuable evidence of a neuro-syphilitic affection. But its absence does not exclude this condition. Here is where the practitioner is liable to go off the track.

The paretic's pupils, even if they do react to light, will, if examined carefully, often show some interesting changes. Inequality of the pupils (anisocoria) should immediately stimulate suspicion, as also should any irregularity or notching in their out-

line. A sluggishness in the light reaction warrants investigation. Some writers lay particular stress on the loss of the consensual reflex and consider it a valued sign indicative of early neurosyphilis, and perhaps the forerunner of the Argyll-Robertson pupil.

Too many internists overlook the increased deep reflexes and regard them as merely a manifestation of some psychoneurotic state. In this way another valuable sign may be passed by.

The tremor so often shown in a paretic's hands may not attract undue attention. It may be woven into the above-mentioned diagnosis of a psychoneurosis, or it may even be made to fit into the hyperthyroid symptom complex.

Not suspecting the presence of a grave disorder the practitioner will not be on the lookout for speech or writing distortion and may omit the special tests that would reveal abnormalities along these lines. It is well in suspected cases when no speech or writing disorder is at first observed to examine on these points when the patient is fatigued.

The ataxia, if present, is less likely to be overlooked for it may be observed as the patient enters the office or may perhaps be noted on other occasions. There are certainly few physicians who, noting the presence of an ataxia, will neglect to give this finding special consideration.

There is still another physical sign which I have neglected to mention up to the present time; I refer to the paretic seizure. This seizure may be easily mistaken for and confused with a variety of other conditions giving rise to convulsive attacks, *i. e.*, uræmia, syncope, epilepsy, hysteria, apoplexy, etc., and it has even been mistaken for sun-stroke. Certainly the history or observation of a seizure or anything suggestive thereof, should require of the physician a rigorous investigation into the etiology, nor should he be satisfied until he has arrived as nearly as possible at the correct diagnosis.

When a medical student I many times heard various teachers of mine remark, "When in doubt, think of syphilis." The practitioner might do well to remember this, not only in connection with bodily ailments but also in dealing with, what to him may perhaps appear to be obscure mental or nervous disorders. For the assistance of the practitioner we might say, "When in doubt suspect paresis, and do not be satisfied until you have excluded it."

All psychiatrists are acquainted with the classical and standard physical signs of paresis and the classical mental picture of the grandiose, expansive and euphoric paretic. This picture has been so well presented in practically all text-books that it has come to be recognized as *the* paretic picture. But when this picture is not present as is quite commonly the case, the untrained observer may encounter difficulties. At such times it is well to remember that there are and may be numerous other mental symptoms that are distinctly abnormal, to recall that the disorder is a dementing one, and that in place of complacency there may be a depression of a degree leading to suicidal attempts. If these symptoms can be correctly observed and linked up with other findings, the result may be a correct diagnosis that might otherwise be missed.

How often is it true that paresis, like lightning, strikes when and where it is least expected. The story of many of these cases is the rapid descent from affluence to poverty, from a position of respect and esteem to the gutter and degradation. The unfortunate part of such happenings is that a certain percentage of them could have been prevented, if the family doctor had had the foresight to recognize and to heed the writing on the wall.

Countless examples could be cited of men of wealth and influence, as well as of men in less prominent walks of life, who have first attracted the attention of their friends and their families by petty eccentricities and peculiarities. How willingly the family and even the patient at times have accepted the physician's statement that the condition may have resulted from over-work or that it was merely a neurasthenia or some other psychoneurotic state.

But instead of responding to the physician's well intended but futile remedies, the condition becomes more aggravated. Slips from virtue, increasing alcoholism, carelessness about money matters, neglect and untidiness of the personal appearance may become at last so prominent as to demand recognition and attract attention to the fact that there is something vitally wrong.

Then it may be too late to save a character that has become morally wrecked and to rescue the finances that may have become entangled in the most preposterous money-making schemes.

According to many authors the correct diagnosis of paresis is not entirely dependent upon the mental symptoms, and very often the practitioner has nothing but the physical examination upon

which to form his opinion. Therefore I concluded that it might be of value to suggest some few salient points to be considered in the physical and mental examination of a suspected paretic. To simplify matters I have grouped these points under various headings. In this way I feel that more emphasis can be put on the important features of paresis for the benefit of the practitioner and thus place him on his guard, so that when the suspected or obscure case does present itself he will be more adequately equipped to deal with it.

1. *History*.—Always question carefully as to any past venereal disease; remembering that an intercurrent gonorrhea may mask a primary lesion, particularly if the latter be very slight. Any information obtained from the relatives regarding a slump in the personality, increased or unusual irritability, and recent laxness in business methods, a decrease in the patient's efficiency, any financial discrepancies or ventures showing a lack of judgment, and a failing memory is of primary importance. These apparently simple and easily over-looked changes of character often hold the key to the situation.

Pay particular attention to what the patient himself has to say regarding his complaints such as headache, dizziness, various aches and pains, disturbances of vision or of locomotion, and question about his libido and potentia. Furthermore, the history of extremely bizarre behavior, explosive outbursts of violent and un-called for temper, any convulsive attacks; in short, any deviation slight or otherwise from the patient's usual behavior or character are warnings that must not be passed lightly by.

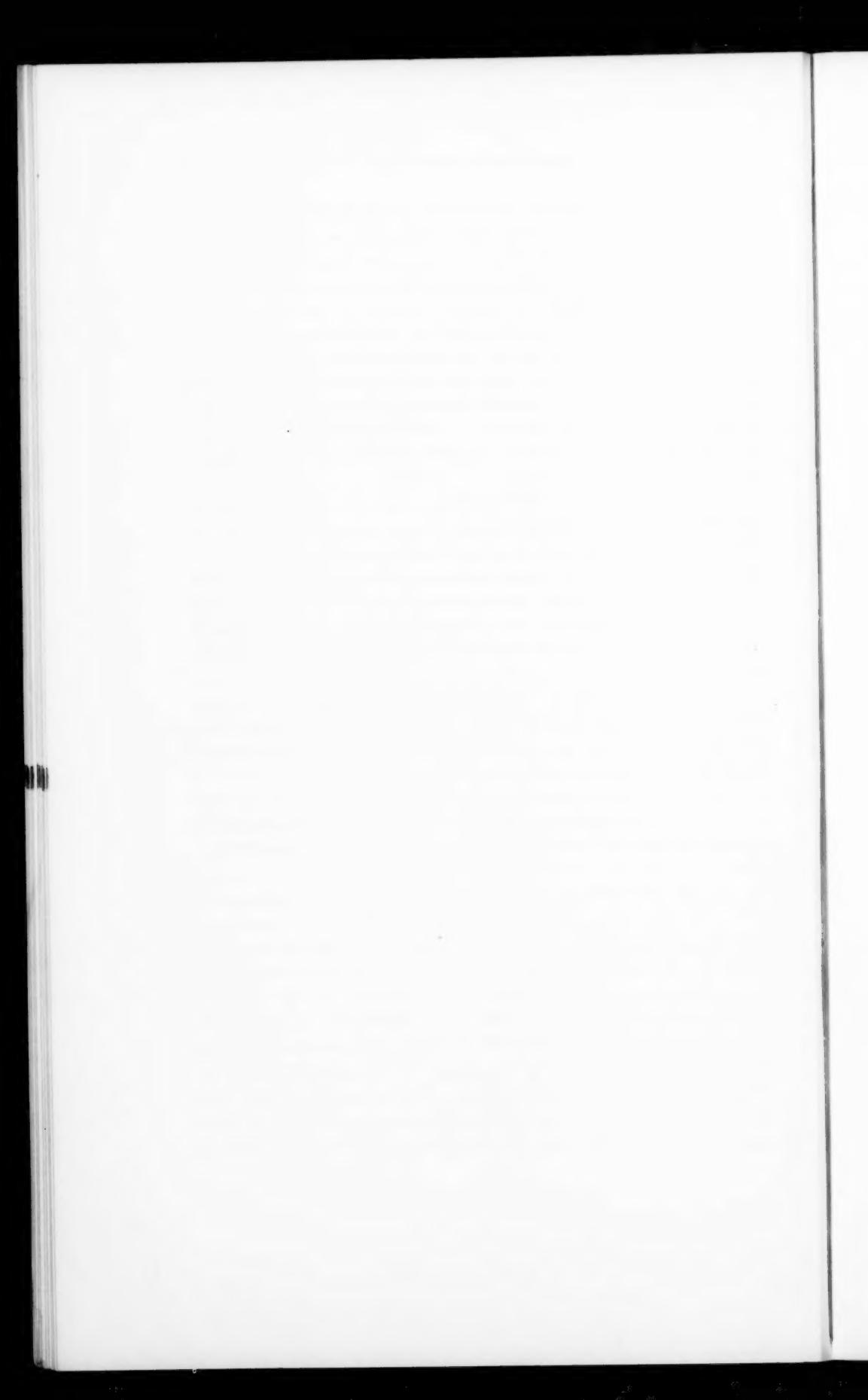
2. *Physical Examination*.—Here the points to be stressed are: Pupillary anomalies of any kind, the presence or absence of tremors of the hands, tongue or lips, the reflex picture and the equality of the reflexes, the special tests for speech distortion and note in a sample of writing the presence of tremor, mispelled words and omission of words or letters. The patient will occasionally volunteer or admit, that he has difficulty in writing and in performing work requiring ready coordination of finger movements. Although placed last in this enumeration of important points in the physical examination, the serology of the blood and spinal fluid is of paramount importance. Often it is the court of last resort. The physical examination of a suspected paretic, must, in the absence of the serological examination, be considered incomplete and inadequate.

3. *Mental Examination.*—One must not expect the practitioner to be skilled in the performance of a complete mental status. But there are certainly a few items in a mental status with which the practitioner should be sufficiently familiar so that at the needed time he can avail himself of them.

The memory can be quickly and often adequately tested for discrepancies by asking the patient the principal dates in his life such as his birth, the date of marriage and age at the time, the age of his wife, the ages and dates of birth of his children, the dates of well-known historical events, the names of the last three Presidents, etc. Naturally the patient's answers can be checked up with information received from the relatives.

Sometimes with very little urging, or under the stimulus of tactful and well-directed questions, the patient will elaborate his delusional system in regard to egotistical ideas or any ideas or delusions of persecution. Once started on this tack the patient will often produce statements so at variance with known information regarding his personality, his business affairs and his mode of life, that the practitioner cannot but regard them as distinctly pathological.

To Sum Up.—Any of the physical findings to which I have called attention, the mental status showing memory defects, poor judgment, a moral slump and delapidation of the personality, combined with vague neurasthenic symptoms, any of the above in no matter how mild a form they may be found, should at once be to the practitioner a red lantern and should demand a most searching inquiry into the cause and the exact nature of the condition.



STANDARDIZATION *

By SAMUEL W. HAMILTON, M. D.

The Association of Medical Superintendents of American Institutions for the Insane was organized in 1844. At the first meeting a resolution on the use of restraint was adopted, thus setting a standard for all the institutions. Four years later disapproval of political appointments was expressed and the necessity of adequate artificial means of heating and ventilation was emphasized.

The famous "Propositions" were submitted by committees and at first were adopted unanimously as embodying "the well-ascertained views of the members of the Association." In 1851 26 propositions relative to the structure and arrangement of institutions for the insane were adopted, and in 1853 16 propositions relative to the organization and discipline of such institutions. These were obviously important steps in the direction of standardization. The first division of opinion seems to have appeared in 1866 over separate provision for chronic insane and endorsement of maximum capacity of 600 beds in place of 250, a number which had somewhat hesitantly been admitted as not too large for an asylum to house, at the session 15 years before.

In 1869 religious services were mentioned, in 1871 instruction on insanity and medical jurisprudence in medical schools, in 1872 overcrowding, and in 1873 separate provision for insane criminals received the official attention of the Association. In 1876 a stand was made against inspection and control by any authority above the trustees; this matter was presented in 11 resolutions which were adopted as propositions with but two dissenters, and other propositions relative to the establishment of separate institutions for inebriates were adopted.

In 1888 the advocacy of official propositions as representing the experience and opinion of the Association received its first check, and a letter from Dr. Pliny Earle, one of the proponents of the original propositions, seems to have played a considerable part

* Read at the seventy-ninth annual meeting of The American Psychiatric Association, Detroit, Mich., June 19, 20, 21, 22, 1923.

in the formulation of this negative attitude on the part of the Association. He believed that the existence of an associational adherence to the propositions had caused much indirect detriment in giving rise to the opinion that the Association was averse to progress and indissolubly bound to the faith of the fathers. In 1916 the subject of the propositions was again brought up and an able committee presented at the session of 1917 in New York an admirable summary of the history of the propositions, following which presentation the committee was dismissed with an expression of the gratitude of the Association, thereby ending for the time all thought of reaffirming old propositions or adding new ones.

Times change and with them the topics on which men's minds are centered. The old controversy as to how many angels could rest on the point of a needle was never settled and might conceivably be debated today with as much fervor as in the period when theology concerned itself about such matters, but the question has simply lost interest. We care so little about angels! So it is with many of the subjects on which this Association took stand several score years ago.

But new questions have come to the fore and there is always a demand not only on the part of governmental agencies but also from other friends of the mentally sick, that institutions shall run on the highest possible level. This carries the correlate that some standard shall exist by which that level may be estimated.

In practice, progressive administrators in various parts of the country have formulated their own standards by comparing notes with their colleagues at meetings of this Association and at various informal conferences. Back in 1856 Missouri sent a delegation as far as New York to learn the best plans for the building of their new hospital, and its first superintendent is recorded among those present at several sessions of the Association. The appreciation of this need of travel and conference is not always vivid before the eyes of the public authorities, but the presence in this room of men from all sections of the country indicates that the principles embodied in our resolution of 1922 on that subject are acceptable in many Commonwealths.

To digress a moment, what has been accomplished through the standardization of medical education is known to us all. Poor

medical schools have been forced to consolidate or discontinue. But one important difference between that project and the standardization of hospitals is that we cannot give up any of our hospitals. They are too few now.

When the American College of Surgeons was organized in 1913, one of the requirements for membership was evidence of having performed a certain number of operations each of a recognized importance. The college found it necessary to erect its own standard, since the records of surgical hospitals were quite as poor as anything that our oldest institutions can show among their archives. A study was made of hospital conditions, the preliminary analysis covering two years. Then a minimum standard was adopted. This comprised but five points, dealing with organization of the staff, competence of its members, the holding of regular staff conferences, accurate and complete case records, and clinical laboratory facilities. These standards were considered minimal and yet a large number of hospitals were quite unable to meet them. In 1918 only 89 hospitals having over 100 beds met these standards, but in 1922 677 out of 812 got on the approved list and 335 out of 811 fifty to one-hundred bed hospitals followed suit. Every hospital is surveyed every year. The pressure of professional and public opinion has brought about this advance. Where physicians have not been enthusiastic, the desire of the nursing staff to claim training or experience in an acceptable institution has exerted leverage and trustees and donors have shown a keen interest in the matter.

Standardization of state hospitals has progressed in certain directions during the last few years. There are few mental hospitals now that do not have staff conferences for the consideration of new admissions. There is a marked tendency for all hospitals to make mental examinations and record their results along similar lines. Hospital statistics have been put in comparable form through the efforts of this Association with the assistance that the National Committee for Mental Hygiene was able to provide on a grant from the Rockefeller Foundation.

The National Committee for Mental Hygiene is of course vitally interested in every movement toward standardization. Its first object was to secure better standards of care for the insane. One of the early projects was the gathering of blue prints and preparing

from them for distribution to inquiring hospital men the plans of the best hospital buildings of various types. Our files contain masses of correspondence from institution physicians and state administrators relative to equipment, organization, training and qualifications of physicians, nurses, social workers and other functionaries.

In considering further efforts at standardization one must bear in mind certain real dangers, to one of which Dr. Pliny Earle made reference in his letter referred to above. Standardization should always involve a process of leveling up and so it does with most institutions, but the highest attained standard cannot be set for all other hospitals in the same field, and there is a human inclination to cease progressing when we reach the accepted standard; therefore, to attain only a set of minimal requirements instead of striving for the best. Sometimes there is a tendency to retrogression on the part of one of the best institutions, because it is impelled in order to be classed among the approved institutions to load itself with all the forms and practices prescribed for institutions of mediocre attainments. This tendency to lower standards of the best hospitals is far from the purpose of those who promote standardization, but it is a real peril nevertheless. Individual initiative is sometimes lessened by the adoption of a routine and this loss may be much more disastrous than any one anticipates. The letter of recommendations may be observed and the spirit neglected. Wise action may avoid these snares but no wise action will be taken without weighing difficulties at their full value. One must guard against bringing opprobrium on a superintendent who has a poor institution but is improving it and will succeed if left alone for a while.

The Modern Hospital is publishing a series of articles dealing with the standards of state hospitals, written by a former superintendent of charities in the State of Illinois. It is the purpose of the magazine to continue this series for a long period, since the editor is convinced that the need of improvement is great; we must admit that the progress making in several states before the war received a serious setback from which we have not yet recovered. From scattered parts of the country one hears of difficulties in securing physicians, nurses, equipment for laboratories,

and in fact difficulties in all fields that are not closely related to food and bedding. Mr. Bowen has made some pungent comments on medical service, crowding, isolation, aloofness, poor arrangement of buildings and the like. The importance of these articles lies in the fact that people are interested in these matters. Whatever our opinion of the validity of the statements made, we should take advantage of the public state of mind to get what the hospitals need. Seemingly we must formulate standards for our institutions and our community activities or someone else presumably less qualified will try to formulate standards for us.

There are details about which no standard would seem to be necessary, for instance the proportion of patients in an institution who should be served from aluminum dishes rather than stoneware. Perhaps it would be a waste of time to indicate the number of blankets that should be available per patient, though there is said to be an institution in an intemperate latitude where one per patient is at times the maximum allowance. But there are matters of great importance about which there is as yet no standard. Take for instance the laboratory. This may be anything from a room in which urinalyses are made with some regularity and sputum examined every few months, up to an elaborate organization with technicians in several departments and serving not only the hospital but a large section of the community. I have been told that when standards for the equipment of general hospitals were formulating in one of our largest states a big city hospital was found to have a laboratory of the small sort and nothing more for the laboratorial instruction of the thirty interns. Official pressure was brought to bear in order to secure an adequate laboratory, without any definite specifications being made as to what should be included; but the result has been a building which houses gross pathology, special work in neuro-pathology, bacteriology, serology, blood chemistry and the use, clinical and experimental, of a large amount of radium. Standardization, therefore, was far surpassed when an impulse toward standardization was given. Should there be any minimum standard for mental hospital laboratories? One hospital seeks a maintenance fund of \$25,000 a year for laboratory salaries and equipment, and I believe that this money will be cautiously and wisely expended—if ob-

tained. Can every hospital make good use of such equipment and personnel? Is it desirable to say anything about the Wassermann test as to whether this should be a routine or whether the hospital itself should have facilities for making it?

It is agreed that we ought to have a standard as regards nursing. A vigorous committee on nursing has already offered a report and is on the point of securing definite advanced standards for our training schools. These standards will be considered not only by us but also by powerful nursing organizations which may have another angle of view, before they will be everywhere effective. Now what should be said of the hospitals that cannot establish training schools of this standard and who should say it? In states like New York, Illinois and Massachusetts there is a central authority which speaks definitely on such matters and in Pennsylvania steps are being taken in the same direction, but most state services are smaller and not so thoroughly organized. To the superintendents and boards of managers of these states we might well have some message as to whether nurses are needed in their institutions, and if so what relation they should bear to the rest of the ward personnel. Should we say nothing about the social workers and psychologists and instructors in occupation and leaders of group play and other specialists who come into our field from time to time?

The American Sanatorium Association, an organization similar to ours but in the field of tuberculosis hospitals, has adopted a standardization scheme by which any institutions requesting a rating can receive one. In the final report of its committee certain purposes are stated as follows: "To offer something that would be helpful in giving to every superintendent argument for funds or authority to improve his sanatorium, rather than to distinguish some or disparage others; to set standards, not to standardize in the sense of attempting to bring all sanatoria up or down to one level; not to bring to a likeness the differences that exist, but to find the common values and express them in a ratable form. Fairly high, but reasonable goals have been set which all would seek to attain, thus stimulating improvement." It is stated that some hospital administrators have already made use of an inferior rating as a strong and successful argument to obtain funds with which

to put their institutions on a proper basis. We know that among our own group there are few hospital heads who are content to run poor institutions. For every such one there are 20 who would bring their institutions up to the best grade if given the opportunity. Could not this Association assist such men by arranging to give them a rating on request and could we not aid when a situation arises as in a state whose hospital staffs not long ago were violently reduced without regard to the effect on the care of the patients?

The purpose of this paper is not to revive an outlawed discussion, but to ask whether this Association feels that any action should now be taken with regard to setting standards for institutions of today and the next few years. The National Committee for Mental Hygiene is involved in this matter by at least two considerations. In the first place a great many of the members and officers of this committee are or have been institution men, and in the second place we receive requests both from our colleagues in the hospitals and from other persons who are interested in matters of administration. A conference might be financed by the National Committee or other aid extended. If therefore the National Committee can serve in such a matter we shall count it a privilege.

DISCUSSION.

DR. COPP.—This certainly is a very important matter and particularly appropriate for the consideration and action of this Association. As intimated by Dr. Hamilton, a committee was appointed some years ago, and I happened to be chairman of that committee. The idea in its appointment was to accomplish what Dr. Hamilton has in mind in the way of standardization. At first it was thought it might be advisable to revive the old propositions which had served a very important purpose. The need of standardization was not questioned. Today it has increased. The objection to reviving these in the same form was, not that they were not serviceable, but the *inflexibility* into which they had crystallized. It was recognized by the committee and, I think, by the whole Association that some expression of current opinion of the Association as to standards along all these lines, was very desirable. The action of last year in appointing the standing committee on policies and standards arose out of the recognition of such need.

Each year this committee will express the ideas representative of the Association in the different fields of psychiatry and institutional provision and administration. These will be modified from time to time according to the changing attitude of the Association. Definite recommendations will

be made by the Association as may be indicated from time to time. Thus a flexible and up-to-date expression of the consensus of opinion of the Association will be possible.

It seems to me that this is one of the responsibilities of this Association, as the representative of psychiatry in the United States and British America, and should be sustained by it.

DR. HAMILTON.—I might have spoken more aggressively had I realized the state of mind in which the Association already is. As an executive officer of the National Committee, I say that we are far from wishing to have any one think that we are trying to force a policy on this Association, but if the time comes when the committee can assist, it will be more than glad to do so.

A STUDY OF THE INTERRELATIONSHIP BETWEEN ENDOCRINE DISTURBANCES AND PSYCHO- NEUROSES WITH CLINICAL AND LABORATORY FINDINGS.*¹

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AND

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The recent Great War renewed the interest of neuro-psychiatrists in the problem of the psychoneuroses. Since the war, efforts have been made as never before to understand the mechanisms underlying these diseased states, and attention has been more or less concentrated on the practical application of knowledge already acquired.

Progress has been made in methods of treatment, necessitated largely by the burden of care thrust upon the medical profession and government by the ex-service man. It has been rightly held that a proper diagnosis and adequate treatment depended solely upon the appreciation of the underlying mental and physical mechanisms. Much has been said for the psychogenic causes by the psychoanalysts, and for the organic causes by the organicists. Both of these schools of thought have their merits and deserve credit for an extension of knowledge of the functional nervous states. Considering these divergent views, and analysing the end results, approached from varying angles, it cannot be denied that there is yet something left for further investigation. With this in mind, and without prejudice or fixed ideas, an association of endocrine disturbances and psychoneurotic manifestations has been promulgated, and the studies reported below have reference thereto.

* Read at the seventy-ninth annual meeting of The American Psychiatric Association, Detroit, Mich., June 19, 20, 21, 22, 1923.

¹ From the Polyclinic Hospital, Graduate School of Medicine, University of Pennsylvania, and the U. S. Veterans' Bureau, District No. 3.

<i>Endocrine Manifestations</i>	<i>Major Endocrine</i>	<i>Minor Pathogenesis</i>	<i>Group I.</i>

Major Psychoneurosis, Minor Endocrine Group (Group A)

Major Psychotherapy, Minor Endocrine Group (Group A)

XXXI.	+	+	+	+	+	+	+	+	+	+	+	+
XXXII.	o	o	o	o	o	o	o	o	o	o	o	o
XXXIII.	o	o	o	o	o	o	o	o	o	o	o	o
XXXIV.	o	o	o	o	o	o	o	o	o	o	o	o
XXXV.	o	o	o	o	o	o	o	o	o	o	o	o
XXXVI.	o	o	o	o	o	o	o	o	o	o	o	o
Totals	o	4	1	5	5	0	4	2	5	1	3	0
Premises	o	40	10	50	50	0	40	533	50	47	30	0

Mixed Endocrine and Psychoneurosis Group (Group 3)

Psychoneurotic Manifestations

Table 2: Minor Endocrine, Major Psychoneurosis Group (Group I)

Case No.	Convulsive Seizures	Tantrums	Fatigability	Headache	Neurastenia/Inertia	Lack of Concentration	Paresis-thetosis	Vague Pains	Weakness	Worry without Cause	Cardio-Vascular Disturbances	Gastro-Intestinal Disturbances	Respiratory Disturbances	Tremor	Visceral Disturbances		
I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
II	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
III	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
IV	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
V	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
VI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
VII	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
VIII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
IX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
XI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
XII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
XIII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
XIV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	1	7	2	6	10	11	2	0	1	10	7	3	7	12	4	5	8
Average	4	2.8	1	2.4	4.0	3.6	0.8	0	0.4	4.0	2.8	1.2	2.8	3.2	1.0	0.9	3.6

Major Psychoneurosis, Minor Endocrine Group (Group 2)

Major Psychoneurosis, Minor Endocrine Group (Group 2)

XVII												
XVIII												
XIX												
XX												
XXI												
XXII												
XXIII												
XXIV												
XXV												
XXVI												
XXVII												
XXVIII												
XXIX												
XXX												
XXXI												
XXXII												
XXXIII												
XXXIV												
XXXV												
XXXVI												
XXXVII												
XXXVIII												
XXXIX												
XL												
Totals	2	3	2	3	4	6	5	2	0	5	4	
Parishes	20	30	20	30	40	60	50	20	0	50	40	

Mixed Endocrine and Psychoneurosis Group (Group 3)

TABLE 3.

Endocrine Manifestations	Percentage in Major Endocrine Group	Percentage in Major Psychoneurosis Group	Percentage in Mixed Group
Endocrine heredity	20	0	76.9
Normal nutrition	20	40	50.76
Over-weight	32	10	23.
Under-weight	29	50	46.1
Normal Trichosis	28	50	34.7
Hypotrichosis	68	40	33.8
Hypertrichosis	4	0	15.4
Normal Sella	37.3	33.3	41.6
Enlarged Sella	62.5	50	50
Small Sella	0	16.7	7.3
Normal Basal Metabolism	44.2	30	62.5
Increased Basal Metabolism	36.8	0	2.5
Decreased Basal Metabolism	0	0	12.5
Normal Sugar Tolerance	25	80	21.2
Increased Sugar Tolerance	68.7	20	65.6
Decreased Sugar Tolerance	6.3	0	9.1
Normal Blood Pressure	31.8	60	46.16
Increased Blood Pressure	45.4	10	23
Decreased Blood Pressure	22.7	30	30.7
Normal Pulse Rate	70	50	32.5
Increased Pulse Rate	29.1	50	61.5
Decreased Pulse Rate	0	0	0
Enophthalmos	12	0	7.7

These percentages are based on the actual number of observations made and not on the total number of cases.

TABLE 4

Psycho-neurotic Manifestations	Percentage in Major Endocrine Group	Percentage in Major Psycho-neurotic Group	Percentage in Mixed Group
Convulsive seizures	4	20	23.07
Dizziness	26	30	44.14
Emotional Instability	8	20	39.45
Fatigue	24	30	15.38
Headache	40	40	38.45
Insomnia	16	60	23.07
Irritability	8	50	30.76
Lack of Concentration	0	20	7.69
Parasthesiae	4	0	38.45
Vague Pains	40	50	46.14
Weakness	28	50	53.83
Worry without cause	12	40	7.69
Cardio-vascular disturbances	28	30	76.90
Gastro-intestinal disturbances	48	20	15.38
Genito-urinary disturbances	16	20	23.07
Respiratory disturbances	20	20	7.69
Reflex disturbances	32	50	4.53
Tremor	40	20	61.53
Vaso-motor disturbances	26	0	53.83

These percentages are based on the total number of cases.

By way of explanation, let it be said that the cases reported here were chosen from about 200, admitted to the Polyclinic Hospital in Philadelphia in the service of Dr. T. H. Weisenburg, for endocrine analysis. Forty-eight cases form the basis of this report, these representing those most completely surveyed from the two standpoints. An absolute adherence to the outline² used as a working basis, was not possible, sometimes because of laboratory crowding and often because of lack of cooperation on the part of the patient. A neuro-psychiatric history, and status, a general medical examination and an endocrine survey were carried out in each case as far as possible.

The results of study in these cases are tabulated for percentages and comparison. In Table 1 appear the results of the endocrine survey and in Table 2 of the psychoneuroses survey. In Table 1, the endocrine manifestations are tabulated and the cases are grouped, first as to major endocrine and minor psychoneurotic manifestations, second as to major psychoneurotic and minor endocrine manifestations, and third, the cases showing a mixture of endocrine and psychoneurotic findings. (Table 1.) The same division of cases is carried out in Table 2, for the sake of comparison the psychoneurotic findings being tabulated (Table 2).

The percentages in Table 3, taken from Table 1, are based in each instance on the actual number of cases in which observations were made and not on the total number of cases. The percentage in Table 4, taken from Table 2, are based on the total number of cases.

In a general way Table 1 shows some rather interesting facts. There were 68 per cent in the major psychoneurosis group and 53.8 per cent in the mixed group. The sella turcica was normal in size in 37.5 per cent of group 1, in 50 per cent of group 2 and in 50 per cent of group 3; it was decreased in size in 16.7 per cent of group 2, and in 8.3 per cent of group 3. (Table 3.) The abnormalities of the sella in the major psychoneurosis group are not supported by findings indicative of pituitary disturbance. The only case in which there was an enlarged sella, showed a normal sugar tolerance curve.

The basic metabolic rate was determined in 28 cases; 17 belong in group 1, 3 in group 2, and 8 in group 3. It was increased in

² Medical Clinics of North America, Nov., 1921, Contribution by Dr. T. H. Weisenburg and Dr. C. A. Patten.

58 per cent of the major endocrine group and normal in the major psychoneurosis group. It was normal in 62.5 per cent, increased in 25 per cent and decreased in 12.5 per cent of the mixed group. From the standpoint of the psychoneuroses the basal metabolism in this series was not shown to be altered.

The sugar tolerance curves were high in 68.7 per cent of the major endocrine group, in 20 per cent of the major psychoneuroses group and in 63.6 per cent of the mixed group. In the major psychoneuroses group the curve was normal in 80 per cent.

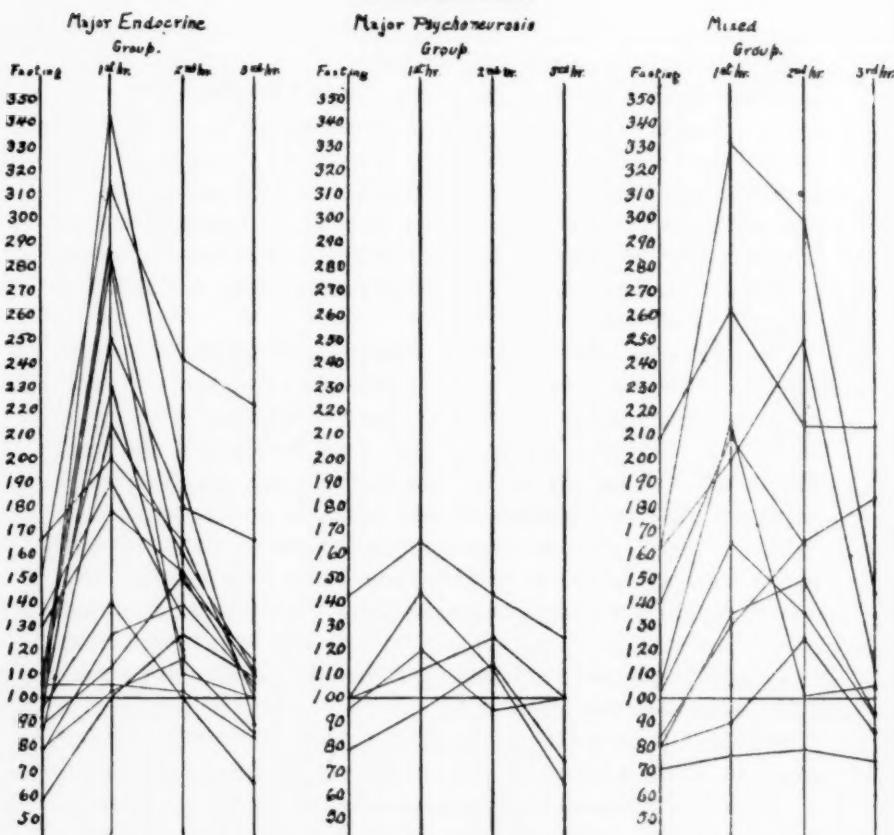
The blood pressure was normal in 3.8 per cent of group 1, in 60 per cent of group 2 and in 46.1 per cent of group 3. It was high in 45.4 per cent of group 1, in 10 per cent of group 2 and in 23.1 per cent of group 3. It was low in 22.7 per cent of group 1, in 30 per cent of group 2, and in 30.7 per cent of group 3. The tendency then in the major psychoneurosis group is toward a normal or low blood pressure.

The pulse rate was found to be extremely variable in the entire group, and also quite labile in most cases. It was increased in 50 per cent of the major psychoneurosis group as contrasted with 29.1 per cent of the major endocrine, and it was not low in any case. This shows that in half of the cases in the major psychoneurosis group the pulse rate was normal and in half it was increased.

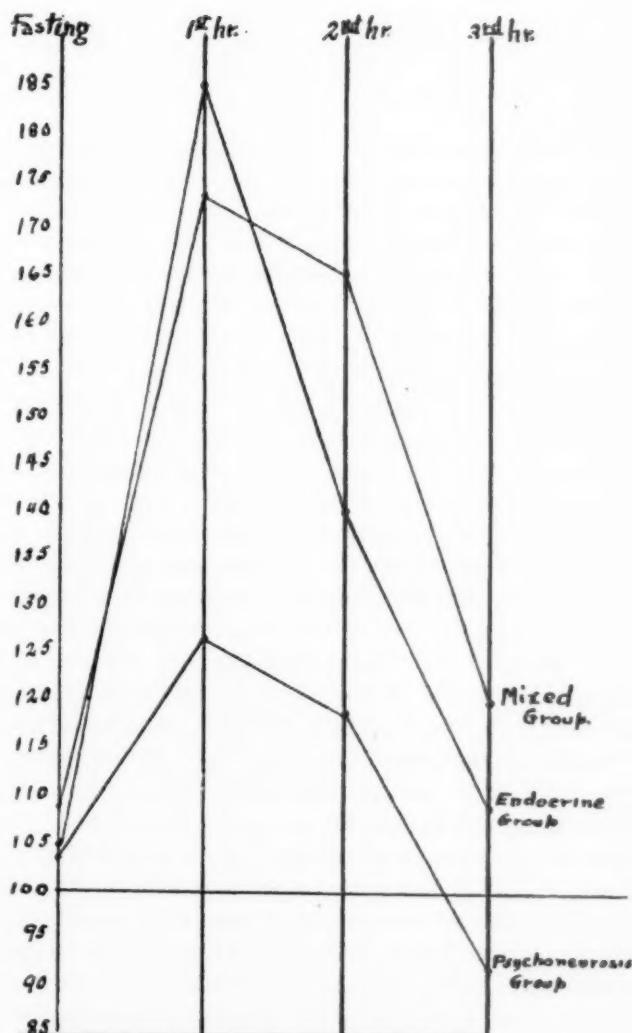
The nutritional state in the major psychoneurosis group showed 40 per cent normal, 10 per cent increased weight and 50 per cent underweight. The mixed group approaches it only in its percentage of underweights, 46.1 per cent; 52 per cent of group 1 were overweight. The greatest tendency, therefore, in the psychoneuroses seems to be towards malnutrition.

In Table 4 is shown the comparative frequency of subjective and objective manifestation of psychoneurosis in the three groups. (Table 4.) Prominent in the major endocrine group as compared to the major psychoneurosis group are: Dizziness, 24 per cent in the former, 30 per cent in the latter; headache, 40 per cent in each group; insomnia, 16 per cent in the former, to 60 per cent in the latter; irritability, 8 per cent in the former, 50 per cent in the latter; lack of concentration only in group 2; vague pains, 40 per cent in one, 50 per cent in the other; weakness, 28 per cent in one, 60 per cent in the other; worry without cause, 12 per cent in one, 40 per cent in the other; cardio-vascular disturbances, 28 per cent in one, 70 per cent in the other; gastro-intestinal disturbances, 48

CHART I.



Polygraph of Sugar Tolerance in the Three Groups (Table I)

CHART 2

Sugar Tolerance Curves
(Averages in the three Groups)

per cent in one, 20 per cent in the other; genito-urinary disturbances, 16 per cent in one, 20 per cent in the other; respiratory disturbances, 20 per cent of each; reflex disturbances, 32 per cent in one, 50 per cent in the other; tremor, 40 per cent in one, 20 per cent in the other; vasomotor disturbances, 36 per cent in one, 0 per cent in the other; convulsive seizures, 4 per cent in one, 20 per cent in the other.

This table shows that lack of concentration was the only subjective complaint not common to the two groups, and that gastrointestinal disturbances, paresthesias, and tremor were the only conditions in which the major endocrine group had a higher percentage than that of the major psychoneurosis group. As compared to the mixed group there is not so striking a difference, the percentages being nearly the same as a total average.

In general it is found that the varied symptoms and signs of the psychoneuroses are present in all 48 cases to a greater or lesser extent. On the other hand, however, it would seem that a psychoneurosis may exist with or without manifestations of endocrine disturbances. It does not seem possible to conclude from this study that a given functional nervous disorder must necessarily be based on an endocrinopathy. It also seems possible that certain types of endocrinopathy may exist without frank psychoneurotic symptoms. The mixture of the two conditions is not infrequent, but it cannot be determined that the one originates the other. Rather more plausible is the theory that there is a common background for both conditions in a certain constitutional defect of the individual, and that depending on perhaps one or many activating causes, the predominant manifestations may be those of a psychoneurosis or an endocrinopathy.

The facts given seem to indicate that the mixed group offers the best opportunity for treatment since it is well known that psychoneurotic manifestations are ameliorated by improving the general physical condition of the patient. Having discovered then, that a neurosis and an endocrine disturbance co-exist, treatment along endocrine lines in bringing about a normal metabolism of the individual would so influence the function and chemical structure of the nervous system that psychotherapy could be advantageously applied.*

* Publication authorized by the Medical Director, United States Veterans' Bureau.

Notes and Comment.

DR. CHARLES K. CLARKE.

It again becomes our painful duty to record the death of one of the Editorial Staff of this JOURNAL.

Dr. Charles K. Clarke, for many years a member of our staff, died at his home in Toronto, Ontario, on January 20, 1924.

It is just a year since we announced the selection of Dr. Clarke to deliver the fourth Maudsley lecture before the Medico-Psychological Association of Great Britain and Ireland. This lecture was delivered in London, on May 24, 1923. Before going abroad, and since his return, Dr. Clarke was busily occupied with the affairs of the Canadian National Committee for Mental Hygiene, of which he was the Medical Director. A sufferer for some time with a cardio-vascular disorder, it is not improbable that his work, the trip to England, the preparation and delivery of the Maudsley address, all combined to hasten the end.

To the last he was interested in his work and had his secretary come to his bedside as long as it was possible to advise as to the work in which he was so much interested.

In the 50 years which have elapsed since Dr. Clarke, as a student interne in the Toronto Hospital for the Insane, became first interested in psychiatry, he has held many important positions. In 1878-79 he was assistant superintendent of the Toronto Hospital for the Insane. In 1879 he was appointed to the same position at the Hamilton, Ontario, Hospital, and in 1881 to the Rookwood Hospital, Kingston, Ontario. He became superintendent of Rookwood in 1885, and in 1905 he returned to Toronto to become the Medical Superintendent of the institution he had entered as a student 31 years before. In 1911 he was made Superintendent of the Toronto General Hospital, which position he occupied for seven years. In 1906 he was made Professor of Psychiatry in the University of Toronto, which position he held at the time of his death.

A committee had been organized in Toronto to arrange a dinner for Dr. Clarke, on January 7, of this year, the fiftieth anniversary

of his entrance as student interne to the Hospital for the Insane in Toronto.

It was proposed on this occasion to present Dr. Clarke with a portrait of himself. His illness and death, however, interfered with these plans.

Dr. C. M. Hinks, who has worked with Dr. Clarke for a long time, an Associate Director and Secretary of the Canadian National Committee for Mental Hygiene, has contributed to the JOURNAL a memorial notice of our deceased associate.

MEMORIAL TO DR. E. E. SOUTHARD.—It is proposed to place in the Boston Psychopathic Hospital a large portrait relief of Dr. Southard, who from its opening until his untimely death was medical director of that institution.

There have been few men in psychiatric work who have contributed more to the science than Dr. Southard. His professional colleagues are under lasting obligations to him, and will, we feel sure, be happy to join in this effort to perpetuate his memory. Contributions should be sent to Dr. William Healy as treasurer addressed to 40 Court St., Boston, Mass. If fifty orders are received a bronze medal duplicating the portrait of size suitable for desk or table can be struck off at a price of five dollars each. Those who desire one of these are requested to add five dollars to their subscription, indicating its purpose. If there are not enough orders the fact will be made known and the money returned.

Association and Hospital Notes and News.

THE EIGHTIETH ANNUAL MEETING OF THE AMERICAN PSYCHIATRIC ASSOCIATION.—The eightieth annual meeting of the Association will be held at the Marlborough-Blenheim Hotel, Atlantic City, N. J., on June 3 to 6 inclusive.

The tentative program which has been sent us indicates that the Association, though it has reached the venerable age of four-score years, is still youthful and progressive, vigorously alert to all that makes for advance in psychiatry.

It is a far cry to that first meeting in Philadelphia, in 1844, but it is interesting to study the list of subjects which engaged the attention of the 13 medical superintendents who attended that meeting.

There were discussions upon the moral and the medical treatment of mental disorders, upon jurisprudence as related to insanity, upon statistics and upon hospital construction; topics which do not differ materially from those discussed at our meetings in these days.

There were 16 committees appointed for the consideration of various matters relating to the care and treatment of the insane. Among these, in addition to the topics we have already indicated, were committees on the organization of hospitals for the insane and on a manual for attendants, on the support of the pauper insane, on asylums for idiots, on post-mortem examinations, on the proper provision for insane prisoners, on the causes and prevention of insanity.

Some of these committees reported during the sessions of the first meeting and all were continued to report at the next meeting.

Of the 13 in attendance, one was from Maine, four from Massachusetts, one from Connecticut, three from New York, one from Pennsylvania, one from Ohio and two from Virginia. At the seventy-ninth meeting, held in Detroit last year, the membership of the Association was 1093 before the election of new members.

Of this number 206 were in attendance, together with 147 visitors and guests. The membership of the Association at the first meeting represented seven states, the membership at the opening of the last annual meeting represented 45 of the 48 states of the Union, Hawaii and the Virgin Islands, of the United States possessions, British Columbia, Manitoba, New Brunswick, Nova Scotia, Ontario, Prince Edward Island, Quebec and Saskatchewan of British America and China, Cuba, The Dominican Republic, England, France, Haiti, India and Scotland. There are included in this list of foreign countries 13 honorary members.

Of the seven states which had representatives at the first meeting, Maine's membership has grown from 1 to 7; Massachusetts' from 4 to 137, with 22 in attendance at the last meeting, Connecticut's from 1 to 30, with 2 in attendance in 1923; New York's from 3 to 238, with 44 at the Detroit meeting; Pennsylvania's from 1 to 84 of whom 22 attended the last meeting; Ohio's from 1 to 60, with 12 at the last meeting; and Virginia's from 1 to 15, with 7 from West Virginia, then a part of Virginia. Of these 22 there were 6 in attendance at Detroit. The 13 representatives from seven states have increased to 578 from the same territory.

The increase in membership at the meeting last year, in Detroit, brought the membership well over 1100, which would, however, but slightly change the foregoing computation. The coming meeting as we have intimated bids fair, from what we have learned of the program, to be one of marked interest. The place of meeting is an ideal one. It is easily reached from all parts of the country and presents attractions which will, we feel confident, greatly enhance the pleasure of those who are fortunate enough to be in attendance.

It is to be hoped that the eightieth meeting will surpass all others in attendance and in the character and quality of the papers and discussions.

PRELIMINARY PROGRAM FOR THE EIGHTIETH ANNUAL MEETING.—The preliminary program provides for the usual business session in the forenoon of the first day, with the President's Address.

The afternoon session will be in two sections to meet simultaneously. One section will deal with administrative problems,

while the other will consider histopathological and biochemical topics. There will be no evening session on the first day. The papers to be presented in the morning session of the second day will deal with the psychoneuroses and their treatment from different points of view.

In the afternoon session certain major concepts of psychiatry will be presented, with special reference to recent trends in psychiatric thought. The evening session will be devoted to the annual address and the President's reception. On Thursday, the third day of the meeting, the psychiatric aspects of homicide will be discussed.

Papers will also be presented on manic-depressive reactions and on tentative plans for a course in mental hygiene.

In the afternoon session, moving pictures will be shown, demonstrating hysteria and late encephalitic conditions, while the analyses made possible by the pictures will be detailed.

The therapeutic possibilities in some psychiatric conditions including dementia praecox, encephalitis and neuro-syphilis will be discussed in several papers.

In the evening Round Table Conferences will be held on: Administration, Clinical Psychiatry, Laboratory Work, Occupation Therapy, and Social Psychiatry and Mental Hygiene. Other groups will be formed if eight or more persons for each group desired combine in a request.

The meeting is expected to close Friday noon. The session of the morning will be devoted to papers and discussions on mental hygiene in childhood.

There are 29 papers promised, which will be more than four for each session. Readers should remember that their papers are expected to be ready to be handed to the Secretary as soon as read, and in such shape as to be ready for publication.

The honor of a place on the program presupposes that the person so honored shall show his appreciation by compliance with this very reasonable regulation.

Some years ago the Association established a rule that anyone on the program finding it impossible to be present at the meeting must either forward his paper to the Secretary in time to be presented at the meeting, or send a valid excuse for not complying with the regulation. A paper to be considered as read by title must

be in the hands of the Secretary at the time of the session at which it was to be presented.

HONOR TO DR. J. CLEMENT CLARK.—On the evening of March 1, 1924, a dinner was given to Dr. J. Clement Clark, Medical Superintendent of the Springfield State Hospital, Sykesville, Md., in celebration of the conclusion of 25 years' service in that position. The number present was limited by the size of the room at the Baltimore Club, where the dinner was held, but nearly 80 persons were present. Many congratulatory and eulogistic speeches were made, and at the conclusion of the dinner, a silver loving cup was presented to Dr. Clark.

APPROPRIATION FOR NEW YORK STATE HOSPITALS.—A bill has been passed in the New York State Legislature, and signed by the Governor, providing for the expenditure of \$12,500,000.00 for the repair of some of the present state hospital buildings and the erection of new structures. This sum is one-fourth of the \$50,000,000.00 bond issue approved by a very large majority at the state election last fall. The sum appropriated in the measure just passed will be largely expended in the metropolitan area. The institutions included will be the Manhattan State Hospital, Ward's Island, the Brooklyn State Hospital, Kings Park State Hospital, Matteawan Hospital for Criminal Insane, the Harlem Valley Hospital, New York State Orthopædic Hospital, and outside the metropolitan area the Rochester State Hospital, the Rome State School for Mental Defectives, and the Letchworth Village and Craig Colony for Epileptics.

COORDINATION OF STATE CLINICS.—A committee has been formed in New York State composed of representatives from the State Hospital Commission, the State Commission for Mental Defectives, State Department of Education, State Board of Charities, State Department of Health and other departments, to bring about a coordination of clinical activities.

In Memoriam.

CHARLES PARKER BANCROFT.

It was wisely said by a Scotch philosopher that we might be allowed to trust that He who had taken untold ages for the formation of a bit of old red sandstone might not be limited to three score years and ten for the perfecting of a human spirit. It was known to his intimate friends that Dr. Bancroft had exceeded by a little the so-called Scriptural limit, but, close to perfection as they felt that spirit to be, there was in their minds little thought that its apparently staunch tenement was not to be long preserved for a ripe old age of steadfast usefulness. Thus it was with a shock of sadness that the news came to a widely distributed multitude of admirers that Dr. Bancroft had died suddenly of cerebral hemorrhage, at Hanover, N. H., on December 14, 1923.

Charles Parker Bancroft was born in St. Johnsbury, Vt., January 11, 1852, at which time his father, Dr. Jesse P. Bancroft, was practising medicine in that town. Members of the American Psychiatric Association who remember the older Bancroft as a pioneer of the early days and knew his work and worth, and greatly respected him, will perceive that when that son came into the world to serve and bless it, he was to realize the happy promise of Professor Castle's concise definition of heredity as "organic resemblance based on descent."

Dr. Bancroft's education was had in boyhood at Phillips-Andover Academy, from which institution he proceeded to Harvard College, taking his degree in Arts there in 1874. Four years later the young man was graduated from the Harvard Medical School. There was a period of service as House Officer at the Boston City Hospital, followed by a staff appointment (1878-79) as assistant physician under his father at the New Hampshire State Hospital at Concord. Dr. Bancroft was physician to the Boston City Dispensary in 1880, and also saw brief service under Dr. Whittemore in the old McLean Asylum at Somerville, Mass.

When Dr. Jesse P. Bancroft resigned his charge in 1882, after 25 years' service, the Superintendency of the State Hospital at Concord fell to the subject of this sketch in most fitting succession. Then began a period of constructive work, marked by initiative, progressiveness and enterprise, which continued without surcease till his retirement in 1917. Even then, as member and President of the Board of Trustees, the affairs of the State Hospital remained close to his hand and heart. Thus it will be seen that the two Bancrofts, father and son, served the state of New Hampshire together for a total of 60 years—a record which is probably unique.

Readers of this JOURNAL do not need to be told in detail of Dr. Bancroft's exploits in psychiatry. Its pages tell the story in more than a score of monographs that bear his signature, as well as in the published discussions. He was a very regular attendant at the Association's annual meetings. One recalls the genial presence, the pleasantly modulated voice strongly suggesting his New England birth, the wisdom, the sturdy honesty—most of all, the *character* of the man. We commemorate his life alike for what he *was* as for what he *did*: his distinctive qualities and his achievement were both notable.

He had been President of the American Psychiatric Association, of the Boston Society of Psychiatry and Neurology, of the New England Society of Psychiatry, and of the Boston City Hospital Medical Association, besides holding membership in other medical societies.

It was natural that a man so equipped should have been sought frequently as an expert in medico-legal proceedings. He shone as a witness not by the tinsel and claptrap of the special pleader, but by sheer honesty and the ability to present his testimony in plain, persuasive and easily understood language. He never allowed himself to be ruffled and even under cross-examination never betrayed irritation, still less rancor. He always won the respect of every respectable juror, and as *amicus curiae* he was a tower of strength. He belonged to the older fashion of men and was never out of key with the old harmonies in his moral field. He took up, and kept steadily at, the problems which he knew to be solvable. Was it not Goethe who held that the mind endowed with active powers, and keeping with a practical object to the task that lies nearest, is the worthiest there is on earth?

These same characteristics brought Dr. Bancroft prominence in civil life. To enumerate only a few of his offices, he was President of the New Hampshire Savings Bank, Director of Mechanics National Bank, Chairman of the State Board of Charities and Corrections, Chairman of the Board of Trustees of the State Hospital, member of the Park Commission, of the New Hampshire Historical Society, and President of the Trustees of South Congregational Church.

When Dr. Bancroft retired it was not to a life of ease but to another field of professional activity which for him was ideal. He became Consultant in Mental Hygiene at Dartmouth College, his task being to readjust such of the 2000 students of that institution as were in need of his expert and benevolent services. He enjoyed this human service thoroughly, indeed, up to the last minute of his conscious life, for it was in the office of the Director of Personnel Research of Dartmouth College that he was stricken. Professor Husband has written of Dr. Bancroft in this rôle: "He was a recognized scientist but in conference with students the scientist was subordinated to the man of great understanding and deep sympathy. His personality inspired confidence and the utmost frankness. So the student revealed himself to Dr. Bancroft to a wonderful degree. This was the secret of his success. . . . He often said he loved his work in the College better than any other work he had recently done."

To speak of the beauty and fulness of Dr. Bancroft's family life were an intrusion upon privacy. We record only that he was married in 1884 to Susan Cushing Wood, who for 40 years was a real helpmate to her husband. There survive also three daughters: Miss Miriam Bancroft, now at the Church General Hospital, Wu-Chang, China; Mrs. Asa Shiverick, of Cleveland; Mrs. John R. McLane, of Manchester, N. H.

Dr. Bancroft always enjoyed the season of recreation with his family in his camp in the New Hampshire hills. The mountains of Vermont where he was born and of New Hampshire where nearly all his life was spent appealed to the imagination and the spirit in him of the hill-man and were a strong character's proper setting. If the great Roman epic poet was wont to declare and to rejoice that Mantua bore him, so too was our deceased friend proud of the New England country, with its hills and dales, that gave him birth and gave him enduring pleasure while he lived.

And in New Hampshire he was laid to rest in the family burying ground in Blossom Hill Cemetery, Concord, on December 17, 1923, after impressive funeral services and with every token, on the part of the people, of reverence, sorrow and affection.

"Yes, lay him mid these hills of snow,
Where Fingal and where Ossian sleep,
Though Saxon tears may haply flow,
The *Highland* heart must weep."

G. A. B.

CHARLES KIRK CLARKE, M. D., LL. D.

Canadian psychiatry suffered a great loss in the death of Dr. Charles Kirk Clarke. He died in Toronto on January 20, 1924, at the age of 67. Two weeks previous to his death, Dr. Clarke completed 50 years of study and work as a psychiatrist. He began his medical career as Clinical Assistant in the Hospital for the Insane, Toronto, in 1874, where he subsequently became senior assistant physician in 1878. Since that time he held many prominent posts with distinction. He was Superintendent of the Rockwood Hospital for the Insane (Kingston) 1885-1905; Superintendent of the Toronto Hospital for the Insane 1905-1911; Dean of the Faculty of Medicine, University of Toronto, 1908-1920; Medical Superintendent of the Toronto General Hospital 1911-1918 and was one of the editors of THE AMERICAN JOURNAL OF PSYCHIATRY and a Fellow of The American Psychiatric Association.

On May 24, Dr. Clarke was signally honored by an invitation to deliver the Maudsley Lecture on Psychiatry to the British Medico-Psychological Association in London, England. A perusal of this lecture furnishes an index of Dr. Clarke's viewpoint with regard to present day problems in psychiatry. The concluding sentences of his address were as follows:

There never was a time when psychiatry needed to take stock of its assets and liabilities as the present. There never was a moment in its history when the possibilities of this splendid department of medicine had such opportunities to come into its own. From a narrow specialty it may broaden into a mighty force to dam the streams of disease, vice and social failure at their very sources, but it will never accomplish this by simply pooh-poohing the thousand and one fads which threaten the very foundation of our specialty.

Psychiatry must show the public its just reasons for existence, its readiness to adjust itself to the new order of things, and a constructive ability

to do something more than merely provide custodial care for those who have fallen by the wayside. In other words, the psychiatrist of the future must be a man, not necessarily living in institutions, but found in every day life, ready to apply the ounce of prevention in preference to the pound of cure.

During the last six years of his life, Dr. Clarke, as Medical Director of the Canadian National Committee for Mental Hygiene, was able to consummate some dreams that he had long cherished. He assisted in the organization of psychopathic hospitals for the observation and early treatment of cases of mental disorder. He was instrumental in raising the efficiency of mental hospital care ; of broadening the scope of occupational therapy ; of improving the training of mental hospital nurses ; of raising the standard of psychiatric teaching in medical schools ; of introducing mental hygiene programs into schools, courts, jails and reformatories. If he had lived longer, he would have devoted attention to the ironing out of difficulties that arise in medico-legal practice when applied to mental abnormalities.

While psychiatry occupied the chief place in Dr. Clarke's life, he was a man of many interests. He was an educational reformer, a naturalist, an accomplished musician, a keen participant in athletics, an authority on birds and on early Canadian literature. Sir Robert Falconer, President of the University of Toronto, paid this tribute—"Take him where you would he was never either on or off his guard against his inner self. That deepest self was so simple, so true, so self-consistent, that it came to the surface like a cool spring welling up from secret depths and lying half hidden under ferns and flowers by the wayside, but with enough trickle to tell the common man or woman, ay, or passing beast of burden, that there he could get a cooling draught for life's dusty journey. He lived and worked for common people, just plain average persons. Of course he was kindly to all, rich and poor, of high estate or lowly ; it made no difference to him. And how many of their tragedies he helped to bear. He used great discretion and was reticent, but often a word or two dropped as from the overflow of a full heart, revealed how much of the sorrows and the sins of other people's lives he had taken unto himself. Charles Kirk Clarke was one of the best men I have known."

C. M. HINCKS.

DR. PAUL WATERMAN.

On July 31, 1923, Dr. Paul Waterman died suddenly in Hartford, Conn. Dr. Waterman was born in Westfield, Mass. on December 17, 1877, the son of Dr. James H. and Maria Clark Waterman. His early education was obtained in the public schools of Westfield and in 1894 he entered Williams College, graduating from that institution four years later with the degree of Bachelor of Arts. He received his degree of Doctor of Medicine in 1902 at the Cornell University Medical School in New York City. In 1903 he entered Bellevue Hospital as an interne, rising to house physician in 1904 and being assistant resident alienist in the hospital in 1905 and 1906. After two years of study abroad Dr. Waterman started practice in Hartford, Conn., in 1909 and limited his work from the beginning to nervous and mental diseases.

From the time he became a resident of Connecticut until his death, Dr. Waterman worked unceasingly in the interest of the community, the commonwealth and the nation. His special ability was recognized at once and he became neurologist of the Hartford Dispensary in 1909, assistant neurologist of the Hartford Hospital in 1910, a member of the Board of Health Commissioners of Hartford in 1912 and 1913, chief of the Neuropsychiatric Clinic of the Hartford Dispensary in 1914 and psychiatrist and historian of the Hartford Hospital during that same year. From 1911 until his death he was actively interested in the work of the Connecticut Society for Mental Hygiene and served that Society in numerous capacities, the last being as a director and member of the executive committee. From 1915 to 1920 he was psychiatrist of the Newington Home for Crippled Children at Newington, Conn. The mental hygiene of childhood was always of great interest to Dr. Waterman and he was one of the first psychiatrists in the country to stress the mental hygiene needs of children. In 1922 he was appointed medical director of the Helen Hartley Jenkins Juvenile Clinic, of Hartford.

He devoted an infinite amount of labor in the interest of the medical profession and served as chairman and member of various important committees of the Hartford Medical Society, the Hartford County Medical Association and the Connecticut State Medical Society. Here his breadth of vision, sincerity of purpose and unselfish labor commanded the respect of all.

In March, 1911, Dr. Waterman enlisted as a private in Troop B, 5th Militia Cavalry; the following month he was appointed 1st lieutenant, Medical Corps, Conn. National Guard; he was promoted to captain in April, 1914, and to major in November of the same year, with assignment as Surgeon of the 1st Conn. Infantry. In 1915 he attended the Army Field Service School for Medical Officers at Fort Leavenworth. The following year he was called into service and served on the Mexican border with the National Guard of Connecticut. Mustered out in October, 1916, he had scarcely returned to his private practice when the nation again called and he served through the World War from March, 1917, to August 26, 1919, rising from Major, Medical Corps to Colonel, Medical Corps, his last assignment being as Division Surgeon of the Fourth Division, A. E. F.

Returning to private practice again in September, 1919, Dr. Waterman lent his aid in assisting ex-service men, many of whom were suffering from neuropsychiatric disorders incident to the war. During the next two years he did an unmeasurable amount of good helping men to rehabilitation. In 1921 he was appointed Surgeon General of Connecticut on the staff of Governor Everett J. Lake. During that same year he was also appointed neuropsychiatrist of the Hartford Hospital, chairman of the State Psycopathic Hospital Commission and psychiatrist of the Hartford Board of Education.

In February, 1923, he was appointed Chief of the Division of Mental Hygiene of the State Department of Health and a member of the State Psychiatric Board. Dr. Waterman was also consulting neurologist of the Manchester Memorial Hospital, the New Britain General Hospital and the Rockville City Hospital.

Among the published writings of Dr. Waterman are the following: "Fracture of the Skull and Intracranial Injury" in 1912, "Military Sanitation" in 1913, "Mental Defectives" in 1916, "Heredity" in 1920, "Epidemic Encephalitis" in 1921.

In addition to professional and fraternity memberships Dr. Waterman was a member of the Society of Alumni of Bellevue Hospital, the New York Neurological Society, the University Club, of Hartford, the Hartford Medical Society, the Hartford County Medical Association, Connecticut State Medical Society, American Medical Association, the Williams Psychiatric Association, Asso-

ciation of Military Surgeons of the United States, the Vidonian Club of New York City, the Fourth Division Association, the American Legion, the Military Order of Foreign Wars, the Nyasset Club of Springfield, the Army and Navy Club of Washington, D. C., New England Society of Psychiatry, Jeremiah Wadsworth Chapter, Sons of the American Revolution, the Connecticut Humane Society, the National Committee for Mental Hygiene, the New York Society for Clinical Psychiatry, the Association for Research in Nervous and Mental Diseases, Leonard Wood Camp, No. 1, Soldiers, Sailors and Marines Association and the Graduates Club of New Haven. He was made a fellow of the American Medical Association in 1915. He had been a fellow of the American Psychiatric Association since 1914.

On January 11, 1915, Dr. Waterman married Helen Tracy, who survives him, as do their four children.

Society indeed owes a great debt to Dr. Paul Waterman. His life was a life of service and of untiring devotion to duty. He excelled as a psychiatrist, was a citizen of the highest type, a distinguished soldier, a patriot, and a true friend.

OTTO G. WIEDMAN.

Appointments, Resignations, Etc.

- ADAMS, DR. EARL H., appointed Medical Interne at St. Lawrence State Hospital at Ogdensburg, N. Y., July 9, 1923.
- ALBERTSON, DR. CHARLES S., appointed Medical Interne at Utica State Hospital at Utica, N. Y., August 6, 1923, and resigned September 24, 1923.
- AMSDEN, DR. GEORGE S., Assistant Physician at Bloomingdale Hospital at White Plains, N. Y., resigned to take charge of the psychiatric pavilion at the Albany General Hospital at Albany, N. Y.
- AFFELBERG, DR. BENJAMIN, Assistant Physician at Kings Park State Hospital at Kings Park, N. Y., resigned December 29, 1923.
- ARMSTRONG, DR. GEORGE G., Senior Assistant Physician at Buffalo State Hospital at Buffalo, N. Y., retired November 1, 1923, after twenty-five years service.
- ASHMORE, DR. BUEL L., appointed Assistant Physician and Pathologist at Grafton State Hospital at Grafton, Mass.
- ATHERTON, DR. C. C., formerly Assistant Managing Officer of Kankakee State Hospital at Kankakee, Ill., appointed Superintendent of Southern Wisconsin Home for the Feeble-minded and Epileptic at Union Bridge.
- AUBREY, DR. WALLACE JOSEPH CHARLES, Senior Assistant Physician at Binghamton State Hospital at Binghamton, N. Y., resigned December 31, 1923, and died January 23, 1924, aged 44.
- AUSLANDER, DR. JACOB, appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., December 15, 1923.
- BAHR, DR. MAX A., Assistant Superintendent of Central Indiana Hospital for the Insane at Indianapolis, promoted to Superintendent.
- BAKER, DR. GRACE, Assistant Physician at Sheppard and Enoch Pratt Hospital at Towson, Md., resigned January 1, 1923.
- BANCROFT, DR. CHARLES PARKER, formerly Superintendent of New Hampshire State Hospital at Concord for thirty-five years, died December 14, 1923, of cerebral hemorrhage, aged 72.
- BARR, DR. EVERETT S., Medical Director of Philadelphia Hospital for Mental Diseases at Byberry, Pa., has taken charge of the Highland Hospital at Asheville, N. C.
- BEEMER, DR. NELSON H., Superintendent of Mimico Hospital for the Insane at Toronto, Ontario, elected President of Canadian Neuro-Psychiatric Association.
- BENNETT, DR. MAX, appointed Assistant Medical Officer at Psychopathic Hospital at Boston, Mass., February, 1923.
- BERGMAN, DR. M. WEINSTOCK, Medical Interne at Manhattan State Hospital at Wards Island, N. Y., resigned January 1, 1923.
- BIVINGS, DR. CHARLES K., Medical Interne at Central Islip State Hospital at Central Islip, N. J., resigned December 31, 1923, to take up work at Bellevue Hospital.
- BLAIR, O. R., Assistant Physician at Northampton State Hospital at Northampton, Mass., resigned June 30, 1923.
- BLOOMBERG, DR. JOHN H., appointed Medical Interne at Kings Park State Hospital at Kings Park, N. Y., October 25, 1923.
- BROWN, DR. BRIAN T., Assistant Physician at Binghamton State Hospital at Binghamton, N. Y., resigned August 11, 1923.
- BUCKLEY, DR. CORNELIUS J., dismissed from Kings Park State Hospital at Kings Park, N. Y., December 4, 1923.
- BUCKLEY, DR. FRANK, appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., October 25, 1923, and resigned December 14, 1923.

- BUCKMAN, DR. CHARLES, appointed Medical Interne at Brooklyn State Hospital at Brooklyn, N. Y., August 15, 1923.
- BURGESS, DR. T. J. W., Medical Superintendent of Protestant Hospital for the Insane at Verdun, Quebec, has retired.
- BYRD, DR. LLOYD E., Assistant Physician at Worcester State Hospital at Worcester, Mass., resigned June 6, 1923.
- CARROLL, DR. ROBERT S., Director of Highland Hospital at Asheville, N. C., granted a year's leave of absence for study and travel in Europe.
- CASTNER, DR. CHARLES W., Assistant Physician at North Texas Hospital for the Insane at Terrell, appointed Superintendent of East Texas Hospital for the Insane at Rusk.
- CINTRA, DR. VICTOR M., appointed Medical Interne at Middletown State Homeopathic Hospital, at Middletown, N. Y., July 31, 1923.
- CLARKE, DR. CHARLES KIRK, formerly Superintendent of Toronto General Hospital, died January 20, 1924, aged 67.
- CORCORAN, DR. EDWARD J., appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., October 12, 1923.
- DAMASK, DR. MANFRED, Medical Interne at Brooklyn State Hospital at Brooklyn, N. Y., resigned October 31, 1923.
- DANIELS, DR. GEORGE E., appointed Medical Interne at Psychopathic Hospital at Boston, Mass., March, 1923.
- DANOFSKY, DR. HERMAN E., appointed Dentist at Gardner State Colony at Gardner, Mass., June 1, 1923.
- DAVENPORT, DR. ANNA K., appointed Assistant Physician at Utica State Hospital at Utica, N. Y., October 1, 1923.
- DELANEY, DR. WILLIAM J., Senior Assistant Physician at Central Islip State Hospital at Central Islip, N. Y., resigned October 31, 1923, to enter private practice.
- DOLLOFF, DR. CHARLES H., Superintendent of New Hampshire State Hospital at Concord, entertained the New England Society of Psychiatry October 3, 1923.
- DOSHAY, DR. LOUIS, appointed Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., July 15, 1923.
- DOUGLAS, DR. MARGARET, appointed Assistant Physician at Kings Park State Hospital at Kings Park, N. Y., November 1, 1923.
- DREWRY, DR. WILLIAM FRANCIS, Superintendent of Petersburg State Hospital at Petersburg, Va., resigned February 10, 1924, to become City Manager of Petersburg.
- EBELING, DR. KARL W., Medical Interne at Brooklyn State Hospital at Brooklyn, N. Y., resigned January 2, 1924.
- EDENHARTER, DR. GEORGE FREDERICK, Superintendent of Central Indiana Hospital for the Insane at Indianapolis, died December 6, 1923, of cerebral hemorrhage, aged 66.
- EPSTEIN, DR. JOSEPH, Medical Interne at Brooklyn State Hospital at Brooklyn, N. Y., resigned October 31, 1923.
- FARIBAULT, DR. JULIUS H., appointed Medical Interne at Binghamton State Hospital at Binghamton, N. Y., July 18, 1923.
- FINE, DR. ARTHUR, appointed Assistant Physician at Kings Park State Hospital at Kings Park, N. Y., November 2, 1923, and resigned December 31, 1923.
- FLAGG, DR. FRANKLIN I., appointed Second Assistant Physician at Boston State Hospital at Boston, Mass., January, 1923.
- FORSTER, DR. JAMES M., Superintendent of Ontario Hospital at Whitby, elected Vice-President of Canadian Neuro-Psychiatric Association.
- Fritz, DR. JOHN, Assistant Physician at Brooklyn State Hospital at Brooklyn, N. Y., resigned July 21, 1923.
- GESHELIN, DR. HARRY, appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., August 1, 1923.
- GLOBUS, DR. ISABEL, appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., September 1, 1923.
- GOLDBACH, DR. MAIER, appointed Medical Interne at Hudson River State Hospital at Poughkeepsie, N. Y., October 26, 1923.

- GOLDBERG, DR. LOUIS, appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., September 16, 1923.
- GREEN, DR. LEE M., reappointed Assistant Physician at Buffalo State Hospital at Buffalo, N. Y., December 18, 1923.
- HADLEY, DR. ROLLIN V., appointed Assistant Superintendent at Westborough State Hospital at Westborough, Mass., February, 1923.
- HAMILL, DR. FRANK C., Medical Interne at St. Lawrence State Hospital at Ogdensburg, N. Y., resigned to enter private practice.
- HAYES, DR. CHARLES ADDISON, Physician to the Chippewa County Asylum for Chronic Insane at Chippewa Falls, Wis., died October 12, 1923, aged 72.
- HENSHAW, DR. GEORGE R., appointed Medical Interne at Middletown State Homeopathic Hospital at Middletown, N. Y., October 2, 1923.
- HILL, DR. LEWIS B., appointed Senior Assistant Physician at Foxborough State Hospital at Foxborough, Mass., July 1, 1923.
- HIWALE, DR. GOVIND S., Medical Interne at Middletown State Homeopathic Hospital at Middletown, N. Y., resigned September 24, 1923, to enter private practice in Bombay, India.
- HOLLAND, DR. JOHN A., Assistant Physician at Gardner State Colony at Gardner, Mass., resigned April, 1923.
- HOULTON, DR. L. T., Assistant Physician at Psychopathic Hospital at Boston, Mass., resigned August 15, 1923.
- ISAACMAN, DR. ABRAHAM, Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., resigned October 1, 1923.
- JACKSON, DR. ROSCOE NEELY, formerly Superintendent of Idaho Insane Hospital at Blackfoot, was accidentally drowned in the Pend Oreille River at Laclede, aged 67.
- JANNEY, DR. FRANCIS R., appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., December 15, 1923.
- JONES, DR. KENNETH B., formerly Superintendent of University Hospital at Baltimore, Md., appointed Medical Director of Relay Sanitarium at Relay, Md.
- KASANIN, DR. JACOB, appointed Assistant Physician at Boston State Hospital at Boston, Mass., July 5, 1923.
- LARRABEE, DR. CALLIE H., appointed Medical Interne at Kings Park State Hospital at Kings Park, N. Y., January 3, 1924.
- LAUZON, DR. ALBERT, appointed Medical Interne at Binghamton State Hospital at Binghamton, N. Y., September 3, 1923.
- LEE, DR. JUDAH, appointed Medical Interne at Kings Park State Hospital at Kings Park, N. Y., August 1, 1923.
- LUPO, DR. CARL W., appointed Assistant Physician at Brooklyn State Hospital at Brooklyn, N. Y., November 1, 1923.
- LYBYER, DR. PAUL C., appointed Assistant Physician at Hudson River State Hospital at Poughkeepsie, N. Y., October 20, 1923.
- MCASLAN, DR. JAMES L., appointed Assistant Physician at Grafton State Hospital at Grafton, Mass.
- MCAUGHTON, DR. PETER, Superintendent of Ontario Hospital for the Insane at Coburg, transferred to Ontario Hospital for the Insane at Brockville.
- MUNNERLYN, DR. JOSEPH FRANCIS, Medical Director of State Hospital for the Insane at Columbia, S. C., died August 25, 1923, aged 34, following a long illness.
- MUNSON, DR. JAMES D., Superintendent of Traverse City State Hospital at Traverse City, Mich., for thirty-eight years, resigned.
- MUSA, DR. GEORGE, appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., January 2, 1924.
- NESMITH, DR. FRANCIS MARION, formerly Assistant Superintendent of Eastern Indiana Hospital for the Insane at Richmond, died January 5, 1924, aged 66.
- NOTKIN, DR. JOHN, Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., resigned January 2, 1924.
- OBERG, DR. CARL, appointed Assistant at Worcester State Hospital at Worcester, Mass., June 16, 1923.

- PAMPHILON, DR. W. MELVILLE, appointed Medical Interne at Buffalo, N. Y., July 7, 1923, and promoted to Assistant Physician September 1, 1923.
- PARKER, DR. FREDERICK L., Pathologist at Taunton State Hospital at Taunton, Mass., resigned June 24, 1923.
- PETERFY, DR. ALBERT B., Assistant Physician at Hudson River State Hospital at Poughkeepsie, N. Y., resigned November 7, 1923.
- PFEIFFER, DR. HENRY M., formerly Assistant Physician at Bloomingdale Hospital at White Plains, N. Y., appointed Assistant Physician at Sheppard and Enoch Pratt Hospital at Towson, Md.
- PORTEOUS, DR. CARLYLE A., Assistant Superintendent of Protestant Hospital for the Insane at Verdun, Quebec, promoted to Superintendent.
- PULFORD, DR. DAYTON T., appointed Medical Interne at Middletown State Homeopathic Hospital at Middletown, N. Y., October 1, 1923.
- PUTNAM, DR. RALPH, formerly on the staff of the State Infirmary at Tewksbury, Mass., died October 17, 1923, at the Peter Bent Brigham Hospital following an operation, aged 47.
- PUTNAM, DR. RALPH M., Medical Interne at Binghamton State Hospital at Binghamton, N. Y., resigned July 31, 1923.
- REMINGTON, DR. JAMES H., appointed Medical Interne at Binghamton State Hospital at Binghamton, N. Y., October 4, 1923.
- RETZBACH, DR. EUGENE, appointed Medical Interne at Brooklyn State Hospital at Brooklyn, N. Y., November 1, 1923.
- RICHARDS, DR. KIRK TAYLOR, formerly on the staff at Manhattan State Hospital at Wards Island, N. Y., died January 19, 1924, at the Riverside Hospital of tuberculosis, aged 48.
- RODGERS, DR. ARTHUR G., appointed Assistant Physician at Hudson River State Hospital at Poughkeepsie, N. Y., July 1, 1923.
- ROGERS, DR. HENRY W., Senior Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., resigned September 21, 1923.
- RONA, DR. MAURICE R., appointed Medical Interne at Kings Park State Hospital at Kings Park, N. Y., October 15, 1923.
- ROSS, DR. LOUIS F., Assistant Superintendent of Eastern Indiana Hospital for the Insane at Richmond, promoted to Superintendent.
- RUBENSTEIN, DR. CHARLES, Medical Interne at Manhattan State Hospital at Wards Island, N. Y., resigned July 15, 1923.
- SARASON, DR. HEINRICH, appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., January 2, 1924.
- SEYMOUR, DR. WILMARSH Y., Senior Assistant Physician at Foxborough State Hospital at Foxborough, Mass., resigned June 30, 1923.
- SIDIS, DR. BORIS, Proprietor of Sidis Psychotherapeutic Institute at Portsmouth, N. H., died suddenly October 23, 1923, aged 55.
- SMITH, DR. CLARA, Senior Assistant Physician at Utica State Hospital at Utica, N. Y., retired from service September 30, 1923.
- SMITH, DR. H. WILBUR, appointed Physician at Grafton State Hospital at Grafton, Mass.
- SMITH, DR. PHILIP, SENIOR Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., resigned September 1, 1923.
- SMITH, DR. SAMUEL E., Superintendent of Eastern Indiana Hospital for the Insane at Richmond, resigned to accept the appointment of Provost of Indiana University.
- SPIRO, DR. CHARLES, Medical Interne at Manhattan State Hospital at Wards Island, N. Y., resigned January 1, 1924.
- SPRINE, DR. HENRY, appointed Medical Interne at Kings Park State Hospital at Kings Park, N. Y., October 1, 1923, and resigned December 31, 1923.
- STAHR, DR. HARRY S., Medical Interne at Kings Park State Hospital at Kings Park, N. Y., resigned November 12, 1923.
- STANLEY, DR. ALFRED M., appointed Medical Interne at Buffalo State Hospital at Buffalo, N. Y., July 14, 1923.

- STEVENS, DR. ORFILA L., Assistant Physician at Central Indiana Hospital for the Insane at Indianapolis, died suddenly September 23, 1923, of heart disease, aged 51.
- STONE, DR. WILLIAM ADDISON, formerly Assistant Superintendent of Kalamazoo State Hospital at Kalamazoo, Mich., died February 24, 1924, aged 61, of heart disease.
- TAYLOR, DR. MARIANNA, Assistant Medical Officer at Psychopathic Hospital at Boston, Mass., promoted to Medical Officer.
- TILTON, DR. NELLIE N., Medical Interne at Hudson River State Hospital at Poughkeepsie, N. Y., promoted to Assistant Physician October 1, 1923.
- TOBACK, DR. CHIMA, appointed Medical Interne at Kings Park State Hospital at Kings Park, N. Y., July 1, 1923, and resigned October 1, 1923.
- TREVISANO, DR. ANTHONY, Assistant Physician at Kings Park State Hospital at Kings Park, N. Y., transferred as Medical Interne to Manhattan State Hospital at Wards Island, N. Y., September 4, 1923.
- TUBB, DR. CLAUDE E., appointed Medical Interne at Hudson River State Hospital at Poughkeepsie, N. Y., November 8, 1923.
- TUCKER, DR. W. LOUIS, appointed Medical Interne at Buffalo State Hospital at Buffalo, N. Y., October 8, 1923.
- VASSEL, DR. MICHAEL J., Medical Interne at Hudson River State Hospital at Poughkeepsie, N. Y., resigned September 30, 1923.
- VASZY, DR. STEPHEN, Medical Interne at Manhattan State Hospital at Wards Island, N. Y., resigned July 9, 1923.
- WAINWRIGHT, DR. SAMUEL P., appointed Assistant Physician at Kings Park State Hospital at Kings Park, N. Y., August 1, 1923, and resigned October 1, 1923.
- WALDO, DR. LOUIS T., Senior Assistant Physician at Willard State Hospital at Willard, N. Y., retired January 1, 1924, after twenty-five years service.
- WALSH, DR. JOHN N., appointed Medical Interne at Hudson River State Hospital at Poughkeepsie, N. Y., July 21, 1923, and resigned September 30, 1923.
- WERNER, DR. HENRY C., Superintendent of Southern Wisconsin Home for the Feeble-minded and Epileptic at Union Grove, resigned December 1, 1923.
- WILLIAMS, DR. RODNEY R., First Assistant Physician at Hudson River State Hospital at Poughkeepsie, N. Y., granted leave of absence November 1, 1923.
- WILLIAMSON, DR. A. B., appointed Assistant Physician at Northampton State Hospital at Northampton, Mass., May 15, 1923.
- WILSON, DR. WILLIAM T., Superintendent of Ontario Hospital at Penetanguishene, Ontario, appointed Superintendent of Ontario Hospital for the Insane at Coburg.
- WILSON, DR. WILMER S., appointed Medical Interne at Buffalo State Hospital at Buffalo, N. Y., September 11, 1923.
- WOODARD, DR. DANIEL S., formerly Superintendent of Nebraska Hospital for the Insane at Lincoln, and Nebraska State Hospital at Ingleside, died November 28, 1923, of myocarditis, aged 75.
- YERBURY, EDGAR C., Assistant Physician at Westborough State Hospital at Westborough, Mass., promoted to Senior Assistant Physician.
- YOUNG, DR. DAVID P., Assistant Physician at Gowanda State Hospital at Helmuth, N. Y., resigned September 7, 1923.
- ZIEGLER, DR. LLOYD H., formerly Instructor in Psychiatry at George Washington University, appointed Assistant House Officer at the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital, Baltimore, Md., and Assistant in Psychiatry at Johns Hopkins University.



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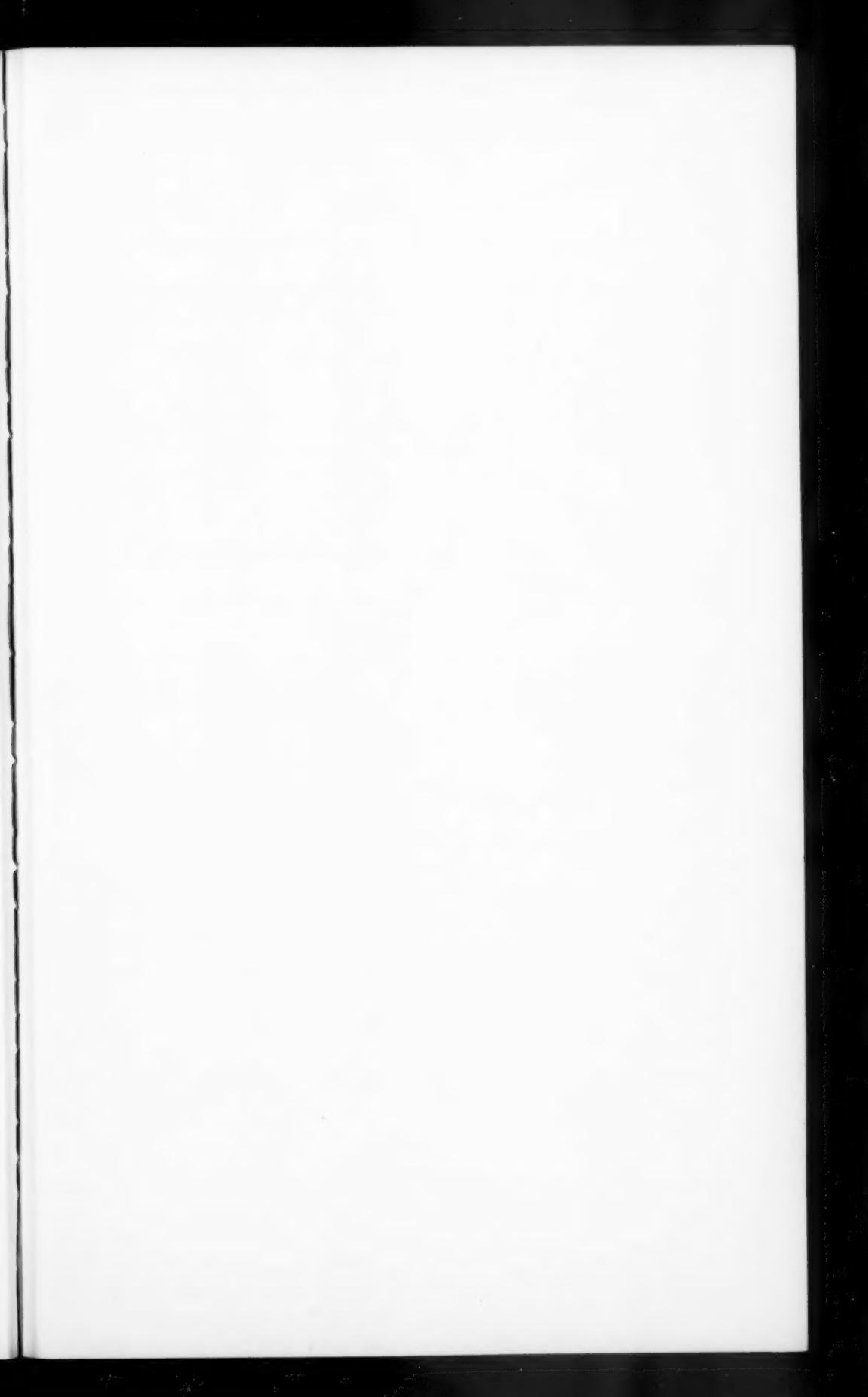
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